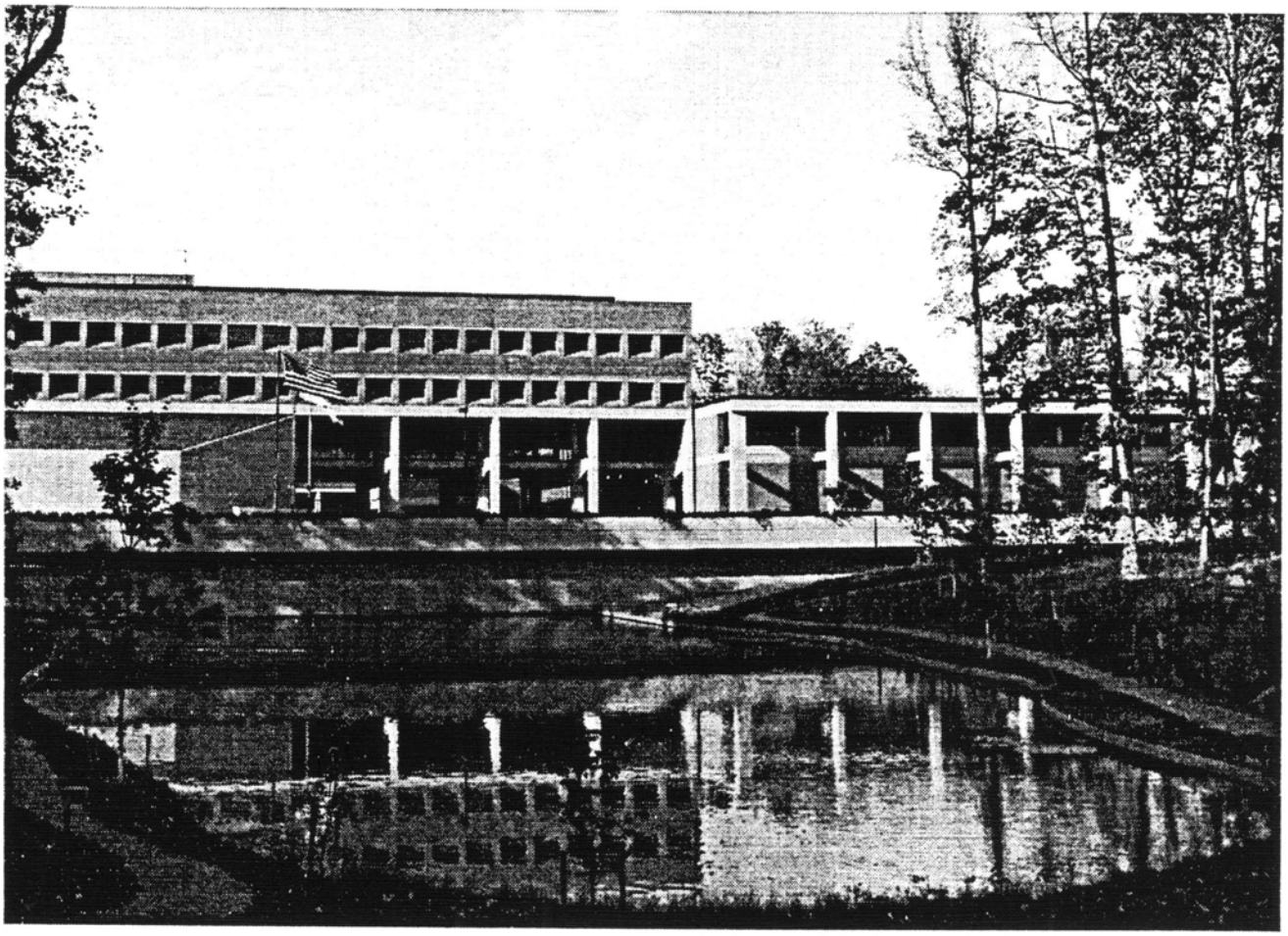
REFERENCE/HISTORICAL DOCUMENT
Fiscal Year 1997



USUHS CELEBRATES 25 YEARS OF NATIONAL PUBLIC SERVICE

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"To insure a continuation of the great contributions that can be forthcoming from military medicine to our society there should be given to military medicine the opportunity to develop its fullest potential and its public prestige. That potential and prestige will be greatly enhanced through the Developments of the Uniformed Services University of the Health Sciences."

Secretary of Defense, James R. Schlesinger, July 10, 1975, at the groundbreaking ceremony for the University .... almost three years from the signing of Public Law 92-426 which established USUHS on September 21, 1972.

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PREFACE

In November of 1997, the Secretary of Defense determined that the Uniformed Services University of the Health Sciences (USUHS) should remain open as part of the Fiscal Year 1998 Defense Reform Initiative. Program Budget Decision (PBD) 71 1 issued on December 17, 1997, outlines the Department of Defense Reform Initiative; This PBD moves USUHS from under the direct oversight of the Office of Health Affairs, Office of the Secretary of Defense, and places the University under the collective oversight of the Surgeons General of the Army, Navy and Air Force. The PBD "restores manpower and funding for USUHS and establishes the Surgeon General of the Navy as the Executive Agent."

In consideration of the ongoing realignment of USUHS and the current review of the University by the Surgeons General of the Army, Navy, and Air Force for possible areas of expansion, the Historical/Reference Document for Fiscal Year 1997 reflects the following: 1) USUHS served during Fiscal Year 1997 as the Academic Center for Uniformed Medicine through its sponsorship of military-unique conferences, research, and educational activities; 2) USUHS' consultative, educational, and on-line service endeavors are poised for expansion as required by the Surgeons General and the Military Health Service System (MHSS); 3) the University, the F. Edward Hebert School of Medicine, the Graduate Education Programs, the Graduate Medical Education Program, the Graduate School of Nursing, and the Office of Continuing Education for Health Professionals are described in detail to include their status of accreditation, mission, programs and activities; and, 4) USUHS has met the missions established by Congress in 1972 and the Department of Defense Medical Programming Guidance for Fiscal Years 1994-1999.

Of significant mention are the military-unique conferences sponsored by the University during Fiscal Year 1997: the 11 th Conference on Military Medicine; the International Mine and Blast Injury Symposium; the First International Conference on Tactical Emergency Medical Support; and, the Military Research Symposium: Protection of Human Subjects. This document describes both the conferences and how USUHS, as the Academic Center for Uniformed Medicine, provided significant support and expertise to meet the unique requirements of the MHSS.

An academic center must constantly renew itself and be prepared to meet the future requirements of those whom it serves. The USUHS Traumatic Stress Center, the Centers for Preventive Medicine and Public Health, the Casualty Care Research Center, and the Armed Forces Radiobiology Research Institute provided military-unique consultative, educational, and research services throughout Fiscal Year 1997; this document describes specific and unique areas of expertise relevant to uniformed medicine and how each of these activities is poised to respond to future requirements as identified by the Surgeons General and the MHSS. The USUHS Learning Resource Center, the newly-established Center for Informatics in Medicine, the on-going World-Wide-Web and Distance Learning Projects, the proposed Simulation Center for the National Capital Region, and the mandated USUHS Medical Executive Training Course are described in detail in this document; all of these activities are at the cutting edge of educational technology and ready to provide significant service to the Department of Defense.

In August of 1997, the University participated in an intensive survey on streamlining education throughout the Department of Defense. Significant to the University, was the direction from the senior staff of the Office of Force Management Policy, Office of the Secretary of Defense (OSD), to include all of the programs of USUHS in its response. This resulted in the identification by OSD, for the first time, of an additional 188 student-years to be attributed to USUHS beyond "the 853 students in residence generally credited by reviewers of the University" .... thus enhancing the cost-effectiveness of USUHS.

A document such as this is not accomplished by a single office. The initial draft was prepared by the Office of the Vice President for Administration and Management and then coordinated with all activity heads, chairs, and program directors at the University. This document reflects information and material provided by the entire University community during the 25th Anniversary Year of its establishment by Public Law 92-426.

I. THE ACADEMIC HEALTH SCIENCES CENTER FOR UNIFORMED MEDICINE

"...We are a major coordinating center for consultation, support, and advocacy education and operational readiness training in the health sciences, throughout the careers of uniformed medical personnel."

Strategic Vision Statement
The Uniformed Services University of the Health Sciences (USUHS)

MEETING THE SPECIAL REQUIREMENTS OF THE MILITARY HEALTH SERVICE SYSTEM

The Practice of Healthcare in the Military is Unique

In addition to being well prepared in general medicine and healthcare, the military physician and the advanced practice nurse must have extensive skills and knowledge in the areas of preventive medicine, combat medicine and evacuation procedures, behavioral sciences, environmental medicine, and tropical infectious diseases. At least three other categories of basic knowledge are essential to military leadership and military medical readiness: knowledge of operational environments, military operations, and military organizational structure.

The Mission of the Military Health Service System

The Military Health Service System (MHSS) has a primary mission to "provide top quality health services whenever needed, in support of military operations and to members of the Armed Forces...The MHSS is committed to readiness for joint operations in a dynamic global environment; provision of top quality, cost-effective healthcare; development of leaders who excel in a changing world; and innovative applications of new technologies" (Joint Vision 2010, Focused Logistics Roadmap, Phase I, Director for Logistics, The Joint Staff, page 30).

Joint Health Service Support Strategy for 2010

"The Joint Health Service Support Strategy (JHSS) Vision 2010 - Full Spectrum Health - maximizes the synergistic effects of the Services' medical elements through jointly coordinated, comprehensively planned, and mutually supportive medical operations. The national military strategy components are aligned and supported by respective JHSS pillars; namely, Peacetime Engagement with a Healthy and Fit Force, Deterrence and Conflict Prevention with Disease and Non-Battle Injury, and Fight to Win with Care and Management of Casualties. Implementing these three pillars of JHSS strategy reduces the demand for strategic lift by 1) delivering upon demand to the warfighting CINCs (Commanders In Chief) a healthy, fit and medically ready force; 2) countering the health threat to the deployed force; and 3) providing critical care and management for combat casualties. This comprehensive JHSS strategy supports the National Military Strategy of forward presence and power projections" (Joint Vision 2010, Focused Logistics Roadmap, Phase I, Director for Logistics, The Joint Staff, page 30).

The USUHS Mission is Consistent with that of the MHSS and the JHSS Vision for 2010

Attainment of the objectives for the JHSS Vision for 2010 requires special military and medical training for medical personnel, and special medical organizations able to accompany and support military units as they carry out their missions. Those who founded, developed, and currently lead the Uniformed Services University of the Health Sciences, with its TriService environment and militarily unique curriculum, assigned missions and responsibilities to USUHS that continue to be consistent with the mission of the Military Health Service System as stated above. The information contained throughout this reference document substantiates the relevancy of USUHS to the JHSS Vision for 2010.

* * * * * *

USUHS Sponsored Programs and Activities

The University has accumulated a multi-service, world-wide perspective on education, research, service, and consultation. USUHS is also unique in relating these activities to military medicine, disaster medicine, and military medical readiness. The following are examples of how USUHS serves the MHSS as its academic health sciences center:

11th Conference on Military Medicine - March 13-15, 1997

"The USUHS 11th annual military medicine conference ... brought together experts in medical management and planning to discuss their experiencesand recommendationsfor dealing with the complex emergencies of today's world."

U.S. Medicine Home page of April 28, 1997.

As the Academic Health Sciences Center for Military Medicine, the Uniformed Services University of the Health Sciences (USUHS) strives to meet the medical readiness requirements of its 2,500 physician and advanced practice nursing graduates, as well as those special requirements identified by the Military Health Service System. On March 13 - 15,1997, in a joint effort with the USUHS Alumni Association, USUHS offered its 1 1th Conference on Military Medicine, Military Medicine in Complex Emergencies.

Background. In the mid 1980s, USUHS alumni and their fellow professionals in the Military Health Service System identified a requirement for specific, continuing education sessions on the current challenges to military medicine. USUHS, the academic center for thousands of health care professionals in the Uniformed Services, responded. The University gathered its own qualified staff of experts in military healthcare and through its network of recognized professionals in the field of complex emergencies, successfully assembled eleven unique conferences to meet the expressed needs of the MHSS.

Continuing Education. USUHS is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for the MHSS. For the 1997 Annual Conference, the University awarded a maximum of 20.5 hours of Category 1 credit toward the American Medical Association Physicians's Recognition Award to the 85 physicians who attended. USUHS is also accredited as a provider of continuing educationin nursing by the American Nurses Credentialing Center's Commission on Accreditation. Sixty-nine nurses at the 1997 conference earned a maximum of 24.4 contact hours. USUHS was also authorized to award 4.5 hours of pre-approved Category II (non-ACHE) continuing education credit toward advancement, recertification, or reappointment in the American College of Healthcare Executives. **The 1997 conference attendance of 383 participants included 70 from the Army; 179 participants from the Air Force, which includes 140 reservists from a single command; 42 from the Navy; and, 6 attendees from the Public Health Service.**

Conference Goals. The thrust of the 1997 conference was to provide instruction by recognized experts on: 1) medically relevant issues related to complex emergencies; 2) the various functions performed by military medical units in complex emergencies; 3) the planning and logistical components of responding to complex emergencies; and, 4) the medical management of injuries and illness commonly associated with complex emergencies.

Humanitarian Assistance. Humanitarian Assistance was a major theme during the conference. Four topics were addressed: 1) emerging pathogens; 2) veterinary operational medicine in the Caribbean; 3) Operation Support Hope (Rwanda); and, 4) the role of the MASH in humanitarian operations in Africa. Breakout sessions providing discussions on **medical management** included the following four topics: 1) Bosnian mine experience; 2) humanitarian assistance - infectious disease issues; 3) mental health considerations in humanitarian assistance; and, 4) the Bosnia force surveillance project. Further breakout sessions providing discussions on **planning strategies**

included the following topics: 1) the military role in humanitarian assistance; 2) military liaison with non-governmental organizations; 3) preventive medicine: officer perspectives on Operation Uphold Democracy; 4) severe eye trauma due to a terrorist attack; and, 5) medical/surgical readiness missions.

Terrorism. The conference also dealt with medical responses to terrorism. Experts led discussions on the following topics: 1) terrorism: its psychiatric consequences; 2) forensic identification of remains of terrorism victims; 3) Khobar Towers: medical response to the terrorist bombing; 4) urban search and rescue; 5) disaster management and the crush syndrome; 6) blast injuries; 7) medical responses to biological terrorism; 8) the United States Marine Corps Chemical and Biological Response Team; 9) the Air Force Forward Surgical Team and its potential role in operations other than war; 10) the 1996 Summer Olympic Games: medical preparedness from heat to terrorist attack; and, 11) safeguarding the presidential inauguration.

Disaster Medicine. Topics on disaster medicine included the following: 1) the National Naval Medical Center Rapid Response Disaster Team; 2) domestic disaster response; 3) disaster epidemiology in Russia; and, 4) a Directorate of Military Support Overview Brief.

Conference Evaluations. The uniformed healthcare professionals who attended the 1 1th Conference on Military Medicine expressed strong agreement that USUHS had once more provided a continuing education experience that specifically met their special requirements. An attendee from Zanesville, Ohio, wrote: "As part of my duties ... disaster planning is a real issue ... I was quite amazed to find that the major experts in this area seem to be clustered at the USUHS ... or to be USUHS al umni... It is becoming an increasingly dangerous world to live in and the USUHS certainly provides a wealth of information to deal with these threats. It is nice to how that this is available for those such as myself who can disseminate this back to their home communities ... I really feel USUHS provides something unique that I have not experienced anywhere else." The active duty attendees left much the same message with the USUHS Office of CHE in the after action reports.

* * * * * *

International Mine and Blast Injury Symposium - March 3-7, 1997

"The U.S. involvement in regional or developing world conflicts is expected to result in more exposure to land mine situations."

> Craig Llewelllyn, M.D., Chair, USUHS Department of Military and Emergency Medicine, U.S. Medicine, April, 1997, "Land Mine Injury Data Assessed," page 17.

Background. The first U.S. Casualty in the Bosnian peacekeeping deployment was a land mine injury. As the U.S. sector in Bosnia was estimated to contain several million land mines, this was not unexpected. The U.S. soldier, who had driven his Humvee over a mine, was treated (by a USUHS graduate) and evacuated, surviving with only the loss of his foot. It has been 30 years since the last conflict in which U.S. medical personnel saw mine-related injuries. Knowledge of the treatment of related blast-wounds in this country is limited. The International Red Cross estimates that every month 800 people are killed and 1,200 are maimed by land mines, an average of one victim every 20 minutes. Because of the low cost of manufacturing a land mine - about $3 - the weapon is a popular one among warring groups in developing countries. According to the International Red Cross, many mine victims never receive any medical care and half of all victims die within minutes of the blast.

Genesis of the Symposium. The Uniformed Services University played a major role in expanding the knowledge base of such injuries when it hosted a week-long International Mine and Blast Injury Symposium on March 3-7, 1997. The symposium was presented and coordinated by recognized experts from the Russian Military Medical Academy in St. Petersburg, the Walter Reed Army Institute of Research (WRAIR - WRAIR has long been involved in blast research), the Army Medical Research and Materiel Command, the USUHS Casualty Care Research Center, and the USUHS Department of Surgery. The symposium was the result of years of contact between the Russian Military Medical Academy and USUHS that began in the 1980's. It was the first conference where Russian and U.S. teams met to share knowledge and experience. The area of most interest to the U.S. personnel focused on dealing with mine blast injuries that occur inside armored vehicles. U.S. troops are generally deployed in vehicles versus on foot, and this is not expected to change in the near future. While explosions such as the World Trade Center and the Oklahoma City bombings have occurred in the recent years, they did not directly add to the medical knowledge of blast injury because most injuries were due to smoke inhalation or building collapse. The Russian medical experience in blast injuries was valuable because medical treatment operations in Afghanistan were similar to those used today by U.S. medics who have limited staff, deal with medical facilities which are spread distances apart, and utilize stabilization procedures for evacuation.

World Renowned Experts. The visiting delegation included the Russian military's top surgeons, including the Russian surgeon general and the Commander of the Military Medical Academy, as well as department heads in the areas of cardiovascular surgery, neurosurgery, war surgery and traumatology. The Russian participants provided infomation and discussions on the following areas: Mine Injury as Patient and Physician - Personal Experience; Incidence and Importance of Blast Injury in Modem Weapons; Current Concepts of Mine/Blast Trauma: Diagnostic and Treatment Effects; Neurosurgical Aspects of Blast and Mine Injuries in Local Combat Actions; War Surgery/Urban Warfare Surgery: Focus on Ongoing Surgical Aid Delivery Systems Efficacy in Blast Injuries; and, Blast and Mine Injuries in Special Forces Operations. The U.S. participants from USUHS and WRAIR presented sessions on the following topics: The Global Mine Threat; Units of Measurement for Mine and Blast Injury Study: Open Issues in Mine Injury Care (this session included a tour of the WRAIR Blast Lab); Current U.S. Blast Injury Research Efforts; and, the Global Mine Injury Resource Center Concept. The symposium ended with a Round Table Exchange on issues for clarification and proposals for joint projects or the sharing of information. **The attendees of the 1997 Symposium determined to schedule further conferences that will continue to bring together world-wide military and civilian medical leaders to foster collaboration and share resources.** All sessions were presented in the USUHS auditorium and representatives from the Military Health Services System generally filled the seating capacity of 400.

Continued Collaborative Efforts. Following the symposium, a U.S. medical team was scheduled to travel to Russia to continue the sharing of information, focusing on the integration of two sets of data: The United States' Wound Data and Munitions Effectiveness Team archive (WEDMET) and Russia's record base of mine casualties. The WEDMET archive, undertaken during the Vietnam War and maintained at USUHS, follows the course of 8,000 casualties, concentrating on what led up to the injury and following through with the treatment. The handwritten Russian mine injury data, held by the Russian Military Medical Academy, details 4,000 military mine casualties over a 25-year period, mostly beginning at the hospital level.

Future Plans for Virtual Instruction. The USUHS Casualty Care Research Center (CCRC), as one of the coordinators in this exchange project, hopes to harness the combined knowledge of the U.S. and Russian medical databases to create a Global Mine Injury Resource Center. The CCRC is aimed at providing essential knowledge to surgeons, health care providers, and the general public world-wide on prevention, mine awareness instruction, de-mining, acute treatment of injuries, and long-term care for victims. The center hopes to merge the Russian and USUHS databases with a detailed injury database maintained by the International Red Cross and envisions that it will be used by the TriServices and International Healthcare Providers for virtual instruction for mine injury surgery.

* * * * * *

First International Conference on Tactical Emergency Medical Support - June 13-14, 1997

The USUHS Casualty Care Research Center (CCRC) hosted the first International Conference on Tactical Emergency Medical Support on June 13 and 14. The conference marked the completion of the 50th Counter Narcotics Tactical Operations Medical Support (CONTOMS) course.

Background. The Counter Narcotics Tactical Operations Medical Support (CONTOMS) Program began in 1990 as a cooperative effort between the University, the Department of Defense Office of Drug Enforcement Policy and Support, the Henry M. Jackson Foundation for the Advancement of Military Medicine, and the Department of Interior, U.S. Park Police Special Forces Branch. The CONTOMS Program was created to provide advanced medical training to federal, state, and local SWAT teams. It teaches skills that reduce the risk of death or serious injury in drug raids, hostage situations, and other high risk law enforcement operations.

Due to its focus on special operations medicine, the CONTOMS Program, as part of the USUHS School of Medicine, Department of Military and Emergency Medicine's Casualty Care Research Center, is uniquely qualified to facilitate the adaptation of military medical science and experience for application in the civilian environment. At the same time, the Program's maturing relationship with the law enforcement community has resulted in the transfer of valuable knowledge, experience and technology for military medical application. In Fiscal Year 1997, nine emergency medical technicians-tactical (EMT-T) courses, seven recertification courses, two medical director's courses, and two commander's courses were provided at various sites around the continental United States. Applications to the program continue to exceed availability and many agencies require CONTOMS certification for entry level personnel. More than 730 law enforcement personnel were trained during Fiscal Year 1997.

Key Subject Areas and Content of the Conference. Approximately 200 law enforcement, fire department and emergency services personnel participated in panel presentations, case studies, displays and demonstrations. Robert E. Brown, Jr., Acting Deputy Director for Supply Reduction in the Office of National Drug Control Policy, delivered the conference's keynote address. His remarks addressed the state of drug abuse in the United States and provided an overview of the concerns related to the international drug supply. Panel presentations included discussions on the federal raid at Waco, Texas, and the riots that recently occurred in Saint Petersburg, Florida.

Attendees examined the future of tactical enforcement in counternarcotics operations, the future of tactical emergency medicine, the use of artificial blood on the battlefield, mobile forward surgical teams and critical care air transport.

Evaluation of the Conference. The conference attendees reported in after-actionreports that the University had met the established goals for the first International Conference on Tactical Emergency Medical Support. The successful collaborative effort between the Department of Defense, the Office of National Drug Control Policy, the Department of the Interior, the U.S. Park Police Special Forces Branch, and the USUHS CCRC was substantiated by the relevant subject matter presented during the Conference. The Second International Conference on Tactical Emergency Medical Support is scheduled for June 1998.

* * * * * *

Military Research Symposium: Protection of Human Subjects - June 16-17, 1997

"The responsibility for ethical conduct of research begins with researchers and extends to their institutions and other supporters. The Administration has multiple efforts underway to reach, educate, oversee and hold accountable each layer of the research system."

> The Department of Defense response to the Advisory Committee on Human Radiation Experiments---Interagency Working Group Proposed Report of 26 December 1996.

Background. As part of the ongoing educational issues related to human subject research, on June 16 and 17, 1997, USUHS hosted the first Military Research Symposium on the Protection of Human Subjects. The symposium was presented in coordination with the Office of Defense Research and Engineering, the Office of the Assistant Secretary of Defense (Health Affairs), and representatives from the Institutional Review Boards from USUHS, the Walter Reed Army Medical Center, and the National Naval Medical Center.

Organized by a committee with membership representing the Services, the symposium addressed the complicatededucational and ethical issues facing clinical investigators in military medicine and academic institutions on the subject of human research. The Symposium was also focused on the Department of Defense's (DoD) initiative to develop new guidance on the use of human subjects in research.

World Renowned Experts. World renowned speakers addressed problematic ethical issues related to human subject research and the responsibilities of the Institutional Review Boards (IRBs) in military medical institutions. Speakers included: Charles R. McCarthy, Ph.D., Senior Research Fellow at the Kennedy Institute of Ethics at Georgetown University; Edmund Pellegrino, M.D., M.A.C.P., Professor of Medicine and Medical Ethics at Georgetown University; Karen Rothenberg, J.D., M.P.A., Professor of Law at the University of Maryland School of Law; William L. Freeman, M.D., M.P.H., Director of Research and Chair, IRB, National Indian Health Services; Alison Wichman, M.D., Chief of the Bioethics Program (Clinical Center), at the National Institutes of Health; Ellen Wright Clayton, J.D., M.D., Professor of Law, Vanderbilt University; David Korn, M.D., Scholar in Residence, Association of American Medical Colleges; Louis Lasagna, M.D., Dean, The Sackler School, Tufts University; Robert Levine, M.D., Professor of Medicine, Yale University School of Medicine; Susan Alpert, Ph.D., M.D., Director, Office of Device Evaluation, Food and Drug Administration; James F. Childress, Ph.D., Professor of Religious Studies, University of Virginia; and, Ruth Faden, MPH, Ph.D., Professor of Law, Ethics and Health, School of Hygiene and Public Health at Johns Hopkins University. The USUHS Vice President for Research insured that the Symposium allowed time for interaction with speakers and those in the audience **(over 250 attendees)** who deal with these issues on a day-to-day basis related to clinical research protocols.

Summaries of Panel Sessions:

What Constitutes Minimal Risk? During this session, the participants considered how minimal risk in clinical research relates to the procedure, the health status of the patient, and where the patient is seen. The panelists and attendees discussed what sort of risks should be tolerated and what level of review is appropriate for various risks.

Re-evaluation of Justice and Autonomy. The panelists and moderator led discussions with the attendees on who are the appropriate human subjects to be included in clinical trials. The attendees were focused on the following issues: the use of women when pregnant or not; minorities; and, vulnerable populations, to include a discussion on whether or not active duty military should be considered a vulnerable population. The attendees were given information on the following National Institutes of Health (NIH) and Department of Defense (DoD) legislation related to human subjects as research that requires a determination of whether the intervention or therapy being studied affects women or men or members of minority groups and their subpopulations differently. For this reason,

a clinical study without appropriate numbers of women or minority subjects may be scientifically flawed, as would one without an appropriate control group, or one with serious methodological weaknesses. In summary, the inclusion of women and minorities as research subjects is considered an issue of scientific merit from the NIH and DoD perspectives.

Should Physicians Participate in the Development of Lethal Weapons? During this session, the panelist and moderator discussed how the focus of military biomedical research is directed toward the development of both preventive and therapeutic measures. Preventive research measures, including vaccines and toxoids as well as prophylactic drugs, attempt to enhance the combat effectiveness of deployed U.S. forces who face either a risk of endemic disease or a threat of the use of biological agents by an adversary. It was pointed out that the Biological Weapons Convention of 1972 specifically prohibits offensive biological research and the U.S. military should not be conducting this type of research. All of the infectious disease and biological defense research is unclassified and subject to public scrutiny. Much discussion also took place on the moral obligation of the physician to promote health and that the aim of the military biological defense program must remain consistent with that moral obligation.

Whose Standards Apply in International Research? The military carries out many studies in international settings. The panelists and attendees discussed whose standards apply when there are differences between the concept of informed consent for research and medical care in the United States and the collaborating country. Publications provided for review focused on the Helsinki Declaration which outlines clear ethical principles, including the basic concepts of informed consent, for physicians conducting biomedical research. There are also guidelines developed by the World Health Organization for applying those principles specifically in research conducted in developing countries (Geneva - 1982 and 1993; and Paris - 1993). One guideline allows a community-based approach to enrollment, according to which the decision whether or not to participate can be elicited through an intermediary, such as a trusted community leader, who helps convey information about the research to the people in the community. There is considerable debate about the appropriateness of obtaining individual informed consent in non-Western cultures. Publications provided to the attendees pointed out that communicating information about a choice and its implications can be difficult and time-consuming, but that it allows valid, informed decisions. Widespread illiteracy is not a barrier to comprehension, especially since informed consent is more an interactive process than one that depends on reading. The provided publications stressed that information about a study should be explained before individual consent is sought and that general information should be circulated widely after consensus meetings which allows time for the decision-making process to take place. The provided publications for review focused on the principle that biomedical research in developing countries is best served through a system of ethical review that is shared by both local and sponsoring committees.

IRBs and the Judging of Qualitative Research. The Panelists discussed the IRB's role in judging the quality of qualitative research and other nontraditional methodologies. The documentation provided to the attendees pointed out that most quantitative researchers recognize and document the worth of a project by assessing the reliability and validity of the work. This same attention to the merit of a research project is much less understood by IRBs when evaluating qualitative research. The provided publications substantiated the growing interest in qualitative investigation as a legitimate approach to research. Grant reviewers, hospital research review committees, and journal editorial boards typically evaluate researchproposals and research findings from the familiar quantitative perspective. The inclusion of a clear definition of the criteria used to assess the research and a description of how these qualitative criteria relate to quantitative criteria will help reviewers assess the value of the work. It is important that researchers accept the principle that every qualitative research proposal and report must establish its trustworthiness just as required for quantitative studies.

The Military IRB in the TRICARE Era. The attendees were provided publications on the current stress placed upon Institutional Review Boards (IRBs). IRBs, created some 20 years ago by the U.S. government as a mechanism for the protection of human research subjects, now find themselves under pressure from increased paperwork, regulatory pressure from the federal level, and economic constraints from the institutions they serve. All of these concerns are relevant to the military IRBs in the current TRICARE environment. Federal regulations

now require IRBs to exercise prior review of all funded projects involving human subjects. Before endorsing a proposed protocol, the IRB reviews six basic areas of the protocol: risks and benefits, informed consent procedures, equity, privacy, vulnerable subjects, and undesirable incentives. Current regulations require that the IRB determine that risks to subjects are minimized and are reasonable in relation to anticipated benefits, that selection of subjects is equitable, and that informed consent is sought and documented in compliance with the regulations. And, all of this must be accomplished as expeditiously as possible due to the limitations on funding of the current era. The panelists and attendees focused on the fact that the members of the military IRBs are already consumed in the full time requirements of their clinical positions where numerous patients must be seen and extensive paperwork must be completed by the clinicians.

The Patient as a Product. Discussions focused on determining the rules for confidentiality and privacy when the patient is identifiable, such as in the use of genetic information from tissue specimens, blood, sera banks, databases or surveys. One publication provided for review centered on the current development of legislation for the protection of individuals who participate in research from the loss of their health insurance or other adverse socioeconomic consequences. While creating such protection is complex, **the provision of this sort of protection** not only justly rewards those who chose to contribute to the community by participating as subjects, but also **promotes research by allowing some individuals to participate who otherwise would have chosen not to do so out of fear.**

Efforts to determine how best to pursue genetic research depend in part on achieving an accurate understanding of the personal and social benefits and risks that may accompany genetic research and of the costs and benefits of seeking consent. **The experts also acknowledge that the federal regulations for the protection of human subjects already address this issue**. How should one handle informed consent for samples removed during routine medical care, where the proposed research seeks, for example, to remove identifiers and to follow population and disease trends for the next 5 years? Recourse to waivers could become the requirement rather than the exception. **The publications provided for review suggested that the IRB review the protocol before the removal of identifiers and decide whether the proposed research was agreed to by the source at the time the sample was obtained.**

Can Clinical Investigators Simultaneously Be Care Providers? The provided publications in this session were directed toward the ethical responsibilities of the IRB when the health care provider is also the research investigator. **Institutional Review Boards must take seriously their responsibility to review research on the subjects' behalf, and not to allow research to be approved with the assumption that patient autonomy and informed consent will provide sufficient protection**. The information pointed out that patients tend to assume that research into which they enter is safe, trusting that the research enterprise protects them from harm. They often do not read consent forms carefully because they assume that someone else has scrutinized the risks and benefits on their behalf. **IRBs should take measures to assure that investigators do not over-represent the benefits of research and that all consequences of the research that relate to the patient's welfare be explained**. IRBs must also assure that potential subjects are provided with information about the duration of the trial, any associated discomforts, and information concerning how the trial could affect their ability to function in daily life.

The National Bioethics Advisory Commission Human Subjects Subcommittee Issues. On July 19, 1996, President Clinton appointed the Chairman and members of the National Bioethics Advisory Commission (NBAC). The Presidential Executive Order directed that the NBAC should provide guidance to federal agencies on the ethical conduct of current and future human biological and behavioral research. The Commission members' expertise includes the fields of philosophy and theology, law and medicine, biology, and other social and behavioral sciences. The President included community representatives to ensure a well-rounded Commission. The Commission has been extended past its initial first year and continues to be focused on the protection of the rights and welfare of human research subjects and issues in the management and use of genetic information. One of the publications provided to the attendees pointed out that the NBAC will examine the adequacies or inadequacies of the current institutional review board system and that it will also focus on the issue of informed consent by human subjects in research.

Conclusions of the Symposium Planning Committee. The Military Research Symposium Planning Committee met immediately following the concluding session of the Military Research Symposium. The Committee forwarded a total of four recommendations to Health Affairs. The fourth recommendation dealt With an evaluation of the success of the Symposium and addressed the question "Where do we go from here?" **The immediate response received from the attendees led the Committee to consider the Symposium to be extremely successful and resulted in a formal recommendation by the Committee to the Department of Defense to continue to sponsor a related seminar every other year**. The next Symposium, under this recommendation, would be held in the Summer of 1999. It was suggested that in the alternate years, a complementary, but less extensive activity would be planned to ensure that the momentum of education in human subjects research is maintained. The Committee's recommendations were forwarded to Health Affairs by the USUHS President on August 8, 1997. (The attendees' recommendation for future symposia received approval from the Department of Defense.)

Department Review of the USUHS IRB. Following the Symposium, in July of 1997, the Director of Scientific Activities from the Office of Health Affairs visited USUHS to review the Office of Research, Program for the Protection of Human Subjects, to ensure that laws, directives and regulations were being implemented. "The review found no significant deficiencies in the IRB program to include the scientific review and human use review." The USUHS staff was described as having a commendable attitude toward responsibilities concerning the protection of human subjects. **The review pointed out that "the depth of knowledge, scientific, ethical, and regulatory, was noteworthy ... and that the USUHS IRB is among the best in the Department of Defense."**

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CONSULTATIVE/EDUCATIONAL/ON-LINE SERVICE ENDEAVORS POISED FOR EXPANSION AS DIRECTED BY THE SURGEONS GENERAL

The USUHS School of Medicine Department of Psychiatry and The Center for Traumatic Stress (Consultative Services)

The Traumatic Stress Center

Consultation Following Disasters or Critical Incidents. Terrorism, hostage events, the poison gas attack on the Tokyo subway, the Oklahoma City bombing, and disasters such the Kobe earthquake, as well as more common traumatic events such as motor vehicle accidents, hurricanes, tornadoes, and physical assaults are a substantial health risk to those who serve our Nation in the Uniformed Services and to a large number of our population. USUHS is a scholarly institution providing consultation nationally and internationally to government and private organizations in times of disasters and critical incidents. As the academic health sciences center for the Uniformed Services, the University is well situated to assist in meeting the needs of the Military Health Services System and of the Nation in the area of traumatic stress.

Background. In 1987, USUHS scientists, educators, and worldwide collaborators (both uniformed and civilian) established the Center of Traumatic Stress. At present, investigators from the USUHS School of Medicine Departments of Psychiatry, Preventive Medicine and Biometrics, Military and Emergency Medicine, and Medical and Clinical Psychology, and the Division of Neuroscience are engaged in extensive studies of traumatic stress.

Areas of Study. Ongoing studies include the following areas: combat stress; the prevention of stress related disease; shipboard fires and emergencies; relocation stress; prisoners of war; leadership of those suffering from grief; medical personnel in disasters; traumatic stress and immune function; community responses to disaster; identification of high risk populations; chronic stress; medical treatment following trauma; biomedical responses to stress; and others. Recently funded studies include: combat stress in Bosnian deployed troops; stress among emergency workers after an air disaster; stress mediators in the U.S. Army; psychological stress in the U.S. military deployed to Desert Storm/Shield; family violence and trauma; stress and women's health: combat, deployment, contingency operations and trauma; basic neurobiology of genetic and second messenger stress responses; stress and arousal symptoms in individuals and groups using the Persian Gulf War symptoms as a paradigm; disaster psychiatry education; program evaluation for the U.S. Army on the effects of breast cancer consumer participation in scientific peer review panels; natural disasters and health outcome: adult and adolescent responses to Hurricane Andrew; and, genetic risk for substance abuse and cognitive processing.

The Center's Eight Laboratories. The Center has eight research laboratories which concentrate on the following areas of study: Stress and Arousal in Individuals and Groups; Acoustic Startle/Stress Physiology; Sleep, Stress and Arousal; Social Function in High Stress Environments; Neurobiology of Stress, a joint lab with USUHS and NIMH; Family Violence and Trauma Project; Human Behavioral Pharmacology/Physiology; and, Substance Abuse.

Scope of Consultation/Research Efforts. The Center's staff serve as consultants to a large number of federal and nonfederal institutions involved with the understanding of responses to traumatic events and in the development of health policies. The Center's collaborative efforts in education and clinical research respond to the following entities: Federal - the U.S. Army, Navy, Air Force, and the Marine Corps of the Department of Defense; the Department of Veterans Affairs; the Department of State; the Agency for International Development; the National Aeronautics and Space Administration; the National Institute of Mental Health, the National Transportation Safety Board (Valujet crash in Florida); and, the Peace Corps; **Private Sector** - the American Medical Association; the American Psychiatric Association; the American Red Cross; the Montgomery County School System and the Maryland Offices of Motor Vehicles; the Oklahoma State Department of Health; and, the Los Angeles earthquake

areas; **International** - the World Health Organization - consultation to Yugoslavia; the Soviet Union: Armenian Ministry of Health; the Singapore Armed Forces; the Disaster Stress Center of the University of Oslo, Norway; and, the Traumatic Stress Center of the Hadassah Medical Center, Jerusalem, Israel. Scientists from the USUHS Traumatic Stress Center and their international collaborators from Norway, Israel, and the Soviet Union are presently performing studies at USUHS to better understand the individual, community, national, and international responses to traumatic events.

Educational Activities. Another major effort of the Center is its sponsorship of two trauma and disaster-related programs, the Visiting Scientist Fellowship Program and the Military Psychiatry Fellowship Program, Graduates of these programs serve as catalysts to research, educational, and clinical programs throughout the world.

Preservation of Lessons Learned. The health implications of traumatic stress are a focused interest immediately following each trauma or disaster, but the data tends to be lost from institutional memory because of the lack of an organized center for the maintenance and development of the resulting information. The USUHS Center for Traumatic Stress has served the Military Health Services System by capturing, organizing and maintaining relevant information following disasters, terrorist events, and wars. Currently, the Center's basic computer data base (accessible to the Uniformed Services) provides over 10,000 items on traumatic stress.

Recognized Resource. The USUHS Traumatic Stress Center, with its acknowledged experts and collaborative network of national and international scientists, is positioned to continue in its response to the special needs of the Military Health Services System as relevant requirements are identified in areas such as: 1) adaptation, recovery, and resiliency; 2) posttraumatic psychiatric illness; 3) neurobiology of stress; 4) medical illnesses developing as a consequence of traumatic stress; and, 5) the impact of traumatic stress on the health of individual family members, family units, and organizational and community functioning.

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The USUHS School of Medicine Department of Preventive Medicine and Biometrics and the Centers for Preventive Medicine and Public Health

One of Seven Accredited Resources. The USUHS School of Medicine (SOM) Department of Preventive Medicine and Biometrics (PMB) has the distinction of being one of only seven accredited resources approved for course work in tropical medicine in the United States. During 1997, PMB continued its collaborative education agreements with the Walter Reed Army Medical Center Internal Medicine Fellowship Program, the Army Program in Health Services Administration, the Army/USPHS Laboratory Animal Medicine Program, the Navy Dental Research Institute and the Indian Health Service.

Graduate Education in Preventive Medicine. Public Health graduate education programs are offered through the USUHS-SOM Graduate Education Program. A total of 248 individuals have graduated from the Master of Public Health (MPH) Program; The Master of Tropical Medicine and Hygiene (MTM&H) Program has graduated a total of 21 personnel. PMB also offers residency training programs in occupational medicine and preventive medicine.

Responsiveness to the Special Needs of the TriServices. In response to the request of the Military Health Services System, the TriService Advanced Military Tropical Medicine Course was offered at USUHS during the summers of 1996 and 1997. Under the auspices of the USUHS-SOM Department of Preventive Medicine and Biometrics, Department of Defense personnel receive education and training in tropical infectious diseases, which is an integral part of medical readiness training for foreign military operations.

Centers for **Preventive Medicine and Public Health.** The Centers for Preventive Medicine and Public Health (CPM/PH) is an entity within the USUHS-SOM Department of Preventive Medicine and Biometrics. The Centers operate under terms of a memorandum of understanding with the Henry M. Jackson Foundation for the Advancement of Military Medicine. The CPM/PH combines broad expertise in research, consultation, education, training, and clinical preventive medicine and public health, to develop data bases and analytic methodologies, prepare innovative curricula, and evaluate processes and outcomes in clinical practice. The following six Centers provided consultative and educational services to the TriServices during Fiscal Year 1997: Center for Health Care Quality Assessment and Improvement; Center for Landscape Epidemiology; Center for Foreign Area Medical Studies; Center for Health in Extreme Environments; Center for Training and Education in Addiction Medicine; and, the Center for Environmental and Occupational Health.

Health Policies and Service. The Centers serve program managers and policy makers in the Department of Defense, other federal agencies, local governments and private organizations concerned with health policies and service. The Centers coordinate the resources of multiple separate centers of excellence to ensure that the appropriate collective expertise is applied. The CPM/PH enhances the stability and long-term effectiveness of USUHS and the Military Health Services System by attracting, retaining, and providing for the professional growth of outstanding faculty and staff, by providing high quality educational experiences to its students, and by promoting excellence in clinical preventive medicine and public health.

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The USUHS School of Medicine Department of Military and Emergency Medicine and the Casualty Care Research Center

Background. The Casualty Care Research Center (CCRC) was established in July of **1989** under the **USUHS** School of Medicine (SOM), Department of Military and Emergency Medicine as a center of excellence for injury control and casualty care research. In keeping with the overall mission of USUHS, the CCRC activities include the following: **1)** conducts research and investigations of issues relating to injury control, casualty care, operational, and disaster medicine; 2) provides medical students, graduate physicians and other uniformed medical personnel with a disciplined, educational, research experience in combat casualty care, injury epidemiology, trauma management, and related areas; 3) maintains a strong collaborative relationship with other federal, state, and local agencies that share common interests in casualty care and operational medicine; 4) serves as a repository of resources and information relating to injury control, injury epidemiology, and operationalmedicine for the Uniformed Services; and, 5) provides research, resource and educational support, technical assistance, and other community service to USUHS, the Uniformed Services, and other federal, state and local elements. The Center operates entirely on extramural funding. Personnel within the USUHS Department of Military and Emergency Medicine participate in various activities of the CCRC based on their professional interests and as their teaching and clinical responsibilities permit. The Center's efforts fall into three categories: research, training, and consultation/operational support.

Research. Many researchprojects are in progress. Among them, the Naval Special Warfare Staged Combat Casualty Care Project seeks to develop a paradigm for the far-forward medical care of Navy SEALs and for the training of the Navy corpsmen who support them. Several consensus conferences have been conducted to help establish treatment approaches to special situations through a scenario-driven development and validation program.

The CCRC, through the CONTOMS Program (described earlier in this report), maintains the only national database on SWAT injuries. This information is used to guide the educational components of the CONTOMS Program and to explore similarities and differences between civilian law enforcement experience and military special operations experience.

The Wound Data and Munitions Effectiveness Team (Vietnam) database (WDMET) is maintained by the CCRC. It contains information on the tactical engagement, weapons employed, resulting injuries, and treatment in the prehospital and hospital environments on approximately 8,000 combat casualties. It is the ONLY collection of its kind in the world. Photographs, medical records, x-rays, recoveredbullets and fragments truly make this a unique resource that has been studied extensively, resulting in approximately 25 scholarly publications.

Training. The CONTOMS Program is the Center's largest training effort. It has attracted international interest and a sister-program is being studied by Britain's Home Office. In response to increased need, the Advanced School was initiated in **1997.** This 32-hour program addresses the advanced topics that are important to the practicing SWAT medic.

In response to requirements from the law enforcement community, the Center introduced its Chemical-Biological Terrorism Awareness Course in 1995. Since that time, the eight-hour course has been taught regularly at training sites around the country.

The Operational and Emergency Medical Skills (OEMS) Course is taught three times each year and focuses on the extended care of trauma patients beyond the first six hours. The participants include medical students, graduate physicians, special operations medics from all Services, and selected federal law enforcement medics.

Consultation/Operational Support. Embracing the philosophy that teachers and scholars must maintain an active practice in their area of expertise to ensure competency, the Center provides consultation and support to multiple organizations, including many federal law enforcement agencies. These activities are carried out under specific Memoranda of Understanding. On the average, the CCRC responds to at least one request for support each

day. The CCRC's Mission Support Center is staffed by specially trained personnel and provides medical consultation, planning, and threat assessment support on a round-the-clock basis.

Telemedicine. The Telemedicine Sustainment Project commenced in September of 1996. Under this project, the CCRC is tasked to provide: 1) telemedicine training for both primary care and supporting hospital elements of the U.S. deployments in Bosnia; 2) in-theater clinical and technical continuation training; 3) telemedicine training and first-line technical support for the U.S. contingent of the United Nations' Force in Macedonia; 4) in-theater technical support in Macedonia; 5) clinical advice and telemedicine needs assessments world-wide at the direction of the Telemedicine Research Laboratory; and, 6) maintenance and updating of the "Telemedicine Yellow Pages." CCRC provided eleven deployed Telemedicine Courses in Germany, Bosnia, the continental United States, and Kuwait. Both clinical training and technical support were provided to Bosnia and Macedonia and technical support was provided to Saudi Arabia. The Telemedicine Yellow Pages were updated and digitized. Clinical needs assessments and advisory services were also provided upon request.

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The USUHS Learning Resource Center

A Virtual Military Medical Reference Center. The USUHS Learning Resource Center (LRC), which houses the library and computer-aided educational systems of the University, is rapidly becoming the Medical Reference Center for the Military Health Services System (MHHS). The LRC is a multi-faceted information resource which combines a traditional library with multi-media and computer-based resources. The LRC computer servers, through the Internet, provide many electronic resources to USUHS billeted and adjunct faculty throughout the world.

Mission

The LRC supports the health-relatedinformational needs of the USUHS students, faculty, staff, and alumni with its collection of materials and through arrangements with other libraries located throughout the federal government, such as the National Library of Medicine, the National Institute of Health, the Food and Drug Administration, and the Pentagon Library. Collaboration also exists between USUHS and universities and colleges within the United States and with international resources such as the British Library and the Canadian Institute for Scientific and Technical Information.

Resources

Books. The LRC has a collection of 95,533 books (the reference collection includes dictionaries, encyclopedias, directories, handbooks, and selected specialized textbooks in the health sciences) and well over 3,000 available titles. Unique is its extensive collection on the history of military medicine. Much information has been donated to the LRC. Among the most notable contributors are: The Friends of the LRC; the Paul Russell Family; the Hooper Family; the Hunter Family; the Taliaferro Family; Dr. Robert Joy; the Association of Military Surgeons of the United States (AMSUS); and, the Society of Medical Consultants to the Armed Forces (e.g., Drs. Pisani, Baker, Zarafonetis, DeBakey, Hall, and Jarcho).

Government Printing Office Materials. The LRC also serves as a selective depository library for the Government Printing Office (GPO) and makes those resources (periodicals, books, CD-ROMs, and databases) available to the general public. The GPO catalog is available through the LRC; subscriptions to titles such as the Federal Register and Commerce Business Daily are also available on the Internet.

Audiovisual Materials. Slides, videotapes, audiotapes, video discs, and CD-ROMs are also incorporated into the LRC collection. During Fiscal Year 1997, several items in support of nursing activities were added to the LRC as well as several military medical historical items from the Korean and Viet Nam timeframes.

Journals. Since 1996, the LRC has provided access to the Adonis Document Delivery System which includes more than 800 journal titles, to include the backfiles and the current-year issues. This collection, from more than 50 publishers, is electronically available and provides cost-effectiveness by eliminating over 1.5 million dollars of subscription fees. Through the LRC, this system provides a fee structure for copyright royalty and print for any article from the 800 titles.

During Fiscal Year 1997, the LRC initiated the provision of electronic access to full-text journals on the Internet through its subscription to databases such as Expanded Academic Index, Health Reference Center Academic, Computer Database, and Ovid Biomedical Journal Collections. At the end of Fiscal Year 1997, the LRC provided 243 medical journals on-line, and in full-text (some examples include the Journal of the American Medical Association, Nature, Science, New England Journal of Medicine, Lancet, British Medical Journal, Annals of Surgery, American Journal of Medicine, and The American Journal of Cardiology. Academic Press has created a consortium plan which extends the on-line subscriptions to all members at the fixed prices paid in prior years. By the end of Fiscal Year 1998, it is expected that the LRC will provide access to more than 600 medical journals, dating back to 1996, in full text.

Microcomputer Service. The LRC also provides a microcomputer area with over fifty computers for use by USUHS students, faculty, and staff. Included in the microcomputer area are: licensed software; scanners; slide writers; and, printers; professional LRC staff are available to assist the individual user. A separate computer classroom, designed for small group learning, provides additional computers to be used in the various teaching programs of the University.

Databases. In Fiscal Year 1997, the LRC provided access to many databases required by its customer base. The reference librarian, with the support of the LRC microcomputer staff, developed Web pages on the LRC Remote Services server which enable the user to request a mediated electronic search; more than 400 databases are available in the mediated mode. The following are examples of databases which are available in a self-service mode: Medline; PsychLit; CINAHL (Cumulative Index to Nursing and Allied Health Literature); Current Contents; Micromedex, Health Reference Center-Academic; Computer Database; Expanded Academic Index; Carl UnCover Reveal; Doody's Health Science Book Reviews; Books In Print; DTIC; FEDRIP; AWIC; Grants Database; ATLAS Directory; BioScan; Federal BioTechnology Transfer Directory; Federal Laboratories Technology; Government Technologies; MicroPatent Alert; TEKTRAN; University Technologies; MD Consult; and, Reuters Health News. The pioneering software used by the LRC enables users at locations outside of the University to access all of the services maintained at various Internet hosts around the world. At this point, this service is unique at the LRC and is not available at other libraries.

Remote Computer Services

On-line services are available 24 hours a day, **7** days a week; these services feature indexes to medical literature and E-mail alert services. In 1997, the LRC launched its Internet WEB-site (http://lrcgwf.usuf2.usuhs.mil/) which provides electronic access to the LRC catalog of resources and selected Internet medical resources, a tour of the LRC, and most importantly, the LRC Remote Services. The Remote Services Collection, which requires registration to obtain an account and password, extends the LRC on a World-Wide-Basis to any registered user (registration is necessary due to the licensing agreements with the commercial vendors). The LRC Remote Services have been accessed by over 1,300 users to include students, faculty, staff and alumni from such places as: the Maxwell Air Force Base; Fort Bragg; Fort Benning, Georgia; New London Submarine Base; Travis Air Force Base; Fort Meade, Maryland; Fort Detrick, Maryland; Aberdeen Proving Ground; Wright-Patterson Air Force Base; Fort Sam Houston, Texas; Madigan Hospital at Fort Lewis; Rota, Spain; and, Bosnia. During Fiscal Year 1997, the LRC was approached by the Naval Submarine Medical Research Laboratory to provide remote services to their staff and by the Uniformed Services Academy of Family Practice to extend access to MEDLINE and full-text journals to its membership. In 1998, the Remote Services will be further tested in the Graduate School of Nursing Distance Learning Program with the Veteran's Administration and in the DoD Nurse Anesthetist Distance Learning Project. The USUHS LRC is prepared to provide Remote Services to the MHSS as requirements and resources are identified and provided.

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Center for Informatics in Medicine

Background. The Center for Informatics in Medicine (CIM) was established in January of 1997 to serve as a focal point for academic activities involving the application of information technology to education, health care, and research.

Mission. The Center has a two-fold mission: 1) to enhance education and research in medical informatics through collaboration and communication; and, 2) to promote the application of information technology to better meet the educational missions of the University. To address this mission, CIM is currently staffed with a single individual, its Director, A. Leon Moore, Ph.D. Since his recruitment, Dr. Moore has undertaken numerous activities in collaboration with faculty and staff and has produced the following products:

Educational Products and Tools:

Introduction to Information Resources and Computing at USUHS. A formal introduction to the information resources and computing capabilities at USUHS was recommended by the current, second-year medical school class for the incoming, first-year students. The sessions were organized through the cooperation of the School of Medicine, Office of the Associate Dean for Medical Education, the USUHS Learning and Resource Center, and the University Information Systems Division. In its collaborative response to the medical students' request, CIM produced the "Introduction to the Internet" section, which includes a short didactic introduction; and, a hands-on laboratory which provides access to a CIM-prepared orientation to the Internet web site (this orientation is available to the entire University for self-study or as a basis for an introductory lecture). Sessions have been presented to the USUHS Pre-Matriculation Course, the incoming first-year medical students, and new faculty members. The orientation is available through the CIM web site (http://cim.usuhs.mil/rasamples/).

Introduction to Computers for Graduate Students. Introduction to Computers for Graduate Students Course (MCB 501) introduces both productivity and scientific applications. The course is designed to introduce new MCB students to computers and computing at the University. Course material includes an introduction to: 1) "navigating" operating system, word processing, spreadsheets, literature searching, and data bases (using reference management and molecular visualization as examples); 2) Internet tools; 3) protein and DNA sequence analysis and statistical packages; and, 4) graphics primitives and scientific presentation software. The course syllabus, bulletin board, and policy information are available on the Internet (http://cim.usuhs.mil/inet./).

AFIP/USUHS Telepathology Workshop - Application of the Internet. The CIM Director served as the Co-Director on this collaborative effort with the Armed Forces Institute of Pathology (AFIP). The workshop provided the participants (38 registrants) with information on telepathology systems. Didactic lectures were selected to give a basic understanding of image formats, and the manipulation and transmission of images to a remote site by direct modem transfer, through the Internet. Discussions took place on informative material on Internet connections through Internet service providers by analog lines, ISDN, and other recent developments in remote connections. Perspectives from users of the AFIP Telepathology service provided attendees feedback on the significance of the service to their practice of pathology. Information on the Internet and its practical applications to diagnostic pathology and other medical specialties were presented. The participants digitized images from microscopic slides and transmitted image files to a distant site. The USUHS LRC user area computers enhanced the learning environment for the participants by providing an opportunity for practical experience in exploring the Internet and the World Wide Web. Participants gained a better understanding of Telepathology, the Internet, and the practical uses of the Internet in education and consultation.

Military Graduate Education Web Site. This site was established to assist program directors in providing a curriculum designed to meet the special needs of the military residents and fellows. The site continues to be developed, and provides links to a variety of educational resources and other sites of importance to military students and teaching staff. As an initial offering, this site has the original "Military Unique Curricula" from 1987 in an

electronic format. An extensive revision of the curricula is currently in progress; individual modules will be replaced as these revisions are completed and approved by the Flag Officer Executive Committee on Graduate Medical Education (GME). This site is primarily a service function of the Center designed to provide a national, TriService forum for the University. It has been viewed as an important USUHS contribution to military GME by Offices of the Surgeons General following their initial briefing. The site can be reached at (http://cim.usuhs.mil/dodgme/) and includes information relevant to both the School of Medicine and to the Graduate School of Nursing.

Additional Internet Web Sites Created and Maintained:

Educational Technology with Computers. The CIM Director Co-Chairs the Educational Technology with Computers (ETC) Special Interest Group for USUHS faculty and staff. The ETC meets on a bi-weekly basis to discuss when information technology is appropriate and can be used to enhance existing educational programs and to provide new educational services. Efforts have focused on re-purposing existing educational products for learners at a distance.

Screening for Disease: HIV in the Military Web Site. This demonstration project was designed to explore the feasibility of re-purposing a traditional lecture for presentation on the World Wide Web (WWW). As a demonstration, a portion of Army Colonel John Gardner's lecture on Epidemiology and Biostatistics was transformed to a WWW-based lecture. The instructor's Power-Point slides were converted to HTML. documents. The lecture slides are currently available at (http://cim.usuhs.mil/aidspmb/) in either graphic or text form. An audio tape of the lecture was then encoded with the RealAudio 3.0 encoder for the RealAudio server; temporal data was also encoded and used to advance the slides in sequence with the audio track. The background material covering the development of this project, including the PowerPoint conversion and Internet protocol used for the delivery of the audio stream is at (http://cim.usuhs.mil/rasamples/).

Curriculum Review Committee Web Site. The Curriculum Review Committee web site lists Committee and Subcommittee members with contact information for each member. The site also contains monthly reports of the Committee's progress. This web page includes a CIM innovation, a discussion group capability, which allows the viewer to read and comment on the reports. The purpose of the web site is to provide service to the Curriculum Review Committee and to enhance discussions of School of Medicine students and faculty on the curriculum review process.

Future Services:

MSN Completion Program for Certified Registered Nurse Anesthetists (NACP). CIM has and will continue to provide significant technology support for this Graduate School of Nursing degree-granting, distance education program. A pilot distance learning Master of Science in Nursing (MSN) Completion Program is being offered by the USUHS Graduate School of Nursing (GSN) for Certified Registered Nurse Anesthetists (CRNA). The degree program is perceived to be significant for several reasons (further detail regarding this project is provided in Part **II** of this report, in the section entitled, Distance Learning Certified Registered Nurse Anesthetist (CRNA) MSN Completion Program). The first course in the MSN Completion Program is PHA 200 1 Medical Pharmacology. This course will be provided to five students via videotape in Academic Year 1998, and the visual material (lecture slides) will be captured for presentation on the World-Wide Web (WWW) in a streaming audio plus lecture slide format in Academic Year 1999. During both presentations of the PHA 2001 Course, didactic material will be supplemented with a WWW-based asynchronous conference facility (discussion groups) and a synchronous video teleconference(VTC, Internet-based CUSeeMe) facility. Both will allow interaction between students, pharmacology faculty, and the course director. The techniques used to present this course via distance learning and student performance will be evaluated. **This prototype course and degree program, delivered at a distance, could serve as a model for other courses from the School of Medicine and the Graduate School of Nursing and also as an example of the potential service that USUHS could provide to the Surgeons General and the MHSS.**

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World-Wide-Web (WWW) and Distance Learning Projects

- **Continuing Education for Health Professionals**

Nineteen pathology cases on the **WWW** were approved for continuing medical education by the USUHS Office of Continuing Education for Health Professionals. As a consequence, continuing medical education credit is being earned by a rapidly increasing number of physicians without incurring the expense of travel or time away from the work site, thus generating cost avoidance for the Surgeons General and the MHSS.

- Internet Web-Based Distance Learning

The USUHS School of Medicine (SOM), Department of Radiology and Nuclear Medicine is embarked on an ambitious project for Internet Web-based Distance Learning. This project has several "target" constituencies:

1) **Medical Students** - The USUHS SOM medical students would be served by having all teaching handouts on-line, to include interactiveteaching materials. Currently, the USUHS Website includes a complete set of images for Radiographic Anatomy for MS-1**;** a module on Chest Film Interpretation for MS-2; a module on Child Abuse; and, several "mini-lectures" regarding brain tumors and posterior-fossa tumors;

2) **MHSS Graduate Medical Education** - MHSS resident-level (GME) handouts will be provided on-line, **to** include interactive "lecture-type" tutorials and access to remote teaching-files;

3) **MHSS Continuing Medical Education** - MHSS continuing medical education will be provided on-line, to include interactive "lecture-type" tutorials and Web-accessed teaching files; and,

4) **Military Telemedicine** - MHSS Telemedicine efforts will be enhanced through "soft-consults" via E-Mail attachments of images.

Long-Range Goals. The USUHS SOM envisions that USUHS could provide "one-stop-shopping" for medical education as directed by the Surgeons General. It is hoped that the current USUHS students, GME residents, and CME customers will be provided annually-reviewed information through the Internet which would result in cost-avoidance for the MHSS.

- **Adult Nurse Practitioner Post-Master's Program**

The USUHS Graduate School of Nursing (GSN) received full accreditation from the National League for Nursing (NLN) in December of 1996. Following its accreditation, the GSN was approached by the Department of Veterans Affairs (VA) to begin an extensive coordination effort to provide advanced practice nursing courses on remote, off-campus sites which would decrease the cost of travel, tuition and staff-replacement for the TriServices and the VA. This effort was initiated by a directive from the VA Undersecretary for Health to increase the number of nurse practitioners by 200 percent in the 173 VA hospitals.

The Adult Nurse Practitioner Post-Master's Program will prepare clinical nurse specialists (with Master of Science Degrees) in advanced practice nursing to diagnose and manage primary care problems of adults. The nine-month program includes theory-based curriculum with a multi-disciplinary approach that emphasizes comprehensive physical and psychosocial assessment, decision-making processes in both acute and chronic health conditions, and health maintenance care, including health promotion and disease prevention. Graduates of the program will be eligible to sit for the American Nurses Association Credentialing Examination for the Adult Nurse Practitioner.

Coast to Coast Scope. On October 10, 1997, eight teaching sites (Atlanta, Georgia; Baltimore, Maryland; Bronx, New York; Charleston, South Carolina; Fayetteville, North Carolina; Fort Leavenworth, Kansas; San Diego, California; and, Los Angeles, California) with a total of 35 advanced practice nurses from the VA and DoD, were successfully linked to the USUHS Board of Regents conference room. USUHS extended its network of high-speed digital telephone lines from the University's compressed-videoclassroom to Martinsburg, West Virginia, which serves as the "hub" and in turn links to the other sites. The compressed video utilizing digital telephone lines was found to be more cost effective than satellite broadcasting.

Preceptors Ensure Comprehension. Preceptors are located at each site to ensure that the curriculum being presented by the distance learning classroom at USUHS is comprehended and that questions are resolved immediately at each of the sites. The GSN is responsible for the curriculum and monitors the teaching. The GSN has also ensured that research protocols were funded to evaluate the effectiveness of the "school without walls" and to ensure that the quality of the program and the final product (the graduate) meet both the standards of the accrediting bodies, the Offices of the Surgeons General and the Federal Nursing Chiefs, and the Military Health Services System.

State-of-the-Art Distance Learning Technology. The Adult Nurse Practitioner (ANP) program is composed of didactic course work delivered via state-of-the-art distance learning technology (interactive video teleconferencing technology and the Internet) along with supervised clinical experiences occurring in the students' home areas. Clinical sites include the following: Department of Veterans Affairs facilities; Bureau of Prisons and Immigration and Naturalization Services sites; community health centers; rural clinics; health departments; nurse managed clinics; HMOs; physician/nurse practitioner practices; schools; mental health centers; and, acute care settings. The ANP students will receive a broad foundation of educational preparation in adult health, advanced nursing practice, nursing theory and nursing research. Health assessment, primary prevention, health maintenance, clinical decision making, illness management and pharmacology are emphasized in the classroom and at the clinical sites. Graduates of the program will be prepared to deliver, coordinate, and evaluate high-quality care, advocate for vulnerable individuals and groups, and provide positive leadership in their health care delivery systems for the promotion and maintenance of adult health.

WWW Address: HTTP://WWW.USUHS.Mil

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The Armed Forces Radiobiology Research Institute

Background. The Armed Forces Radiobiology Research Institute (AFRRI) is the principal Department of Defense (DoD) laboratory for investigations of the biological effects of ionizing radiation. The TriService laboratory, locatedon the campus of the National Naval Medical Center **(NNMC)** in Bethesda, Maryland, was charteredin 1961. In October of 1993, the management of AFRRI was transferred from the Defense Nuclear Agency (now the Defense Special Weapons Agency) to **USUHS.** AFRRI employs about 170 military and civilian scientists, physicians, technicians, and support personnel. The Institute supports the research requirements of DoD components and collaborates with other government facilities, academic institutions, and civilian laboratories in the United States and other countries.

The AFRRI complex was designed and built to conduct radiobiology research in support of the military medical mission. The first radiation source installed in the facility was a TRIGA research reactor. The design for this reactor was conceived by Dr. Edward Teller as one that would be safe if built and managed by university nuclear engineering departments for nuclear materials research and training purposes. **It was quickly recognized that AFRRI's ability to safely pulse the TRIGA made it an ideal source to simulate the initial radiation pulse from a nuclear weapon.**

More recently, the reactor demonstrated its utility as a source of fission spectrum neutrons to conduct radiobiology experiments at very low-dose levels for protracted periods of time. Although there are 49 of these small research reactors in the world, only the AFRRI reactor is designed for and is wholly dedicated to radiobiology research.

AFRRI's second major source is a cobalt-60 facility. Designed to safely hold up to 500,000 curies of cobalt-60, the facility is the largest source of gamma rays on the East Coast. Because this source can produce a high exposure rate, essentially monoenergetic gamma-ray fields, it is ideally suited as a reference source of high-energy photons for military radiobiology research.

Outreach. AFFRI disseminates its findings within DoD and the international scientific community through articles in peer-reviewed journals, presentations at professional conferences, and reports and recommendations to the TriServices concerning the mitigation of radiation hazards and optimized medical treatment of casualties. Research is shared with specific audiences through symposia, consensus conferences, publications, and an accredited course on the medical effects of ionizing radiation.

The Medical Effects of Ionizing Radiation Course trains physicians, nurses, and technical support personnel on treatment strategies for radiation injuries. Two-day versions of the course are offered world-wide at military medical centers throughout the year. An intense five-day course is also offered once a year in the Washington, D.C., area.

AFRRI also maintains the Medical Radiobiology Advisory Team, which provides medical and health physics consultation and dose assessment for any military or non-military radiological injury. In recent years, this team has been used to provide support in actual radiological emergencies that have occurred around the world. With additional AFRRI health physicists, the team also deploys with the Defense Nuclear Advisory Team in response to world-wide exercises involving nuclear weapons and nuclear reactor accidents, and exercises involving radiological dispersal devices.

Research Thrusts. The four major AFRRI research thrusts are carried out by the following teams:

The Radiation Casualty Management Team. This team investigates the full spectrum of medical countermeasures for an external exposure to ionizing radiation. Most recently, this team developed sophisticated strategies based on the therapeutic stimulation of growth and repair of irradiated blood cell populations. This effort

significantly increased survivable exposure levels and formed the basis for an internationally accepted treatment strategy for persons exposed to life-threatening levels of radiation. The team is also testing pharmaceuticalstrategies to lower the long-term health risks of radiation exposure. Recent experiments performed at AFRRI, as well as other laboratories, have used animal models and cellular systems to demonstrate the ability of certain drugs to block the induction of radiation-induced mutations and related neoplastic processes. The team is evaluating non-invasive drug delivery systems that will permit the continuous infusion of radioprotective agents to block the effects of radiation exposure for prolonged periods of time, without causing unacceptable side effects.

The Biodosimetry Team. This team is developing biodosimetric assays to assess ionizing radiation exposure levels. Work is progressing to establish at AFRRI the capability to conduct definitive diagnostic biodosimetric assays based on an automated analysis of the number and distribution of chromosome aberrations in lymphocytes. In addition, cytogenetic and molecular biomarkers are being evaluated for use in developing rapid, field-deployable biodosimetric assays to support commanders' decisions regarding tactical operations and medical treatment. The screening assay capability in the field will be supported by the definitive assay capability at AFFRI.

The Depleted Uranium Team. This team was formed soon after it was determined that depleted uranium (DU) munitions used during the Gulf War had wounded approximately 16 American soldiers as a result of friendly-fire accidents. Although this is a small number of casualties, the demonstrated tactical superiority of this new class of munitions means that future adversaries could deploy them against our forces on a large scale. As with conventional shrapnel injuries, it is often impossible to surgically remove all of the metal fragments from affected tissues; personnel wounded with DU are likely to carry the metal for the rest of their lives. Although DU has a low specific radioactivity, the relatively small amount of radiation emitted from the fragments may contribute to, and perhaps enhance, the toxicity associated with the chemical properties of uranium. Little is known about the immediate and long-term health effects of uranium fragments imbedded in tissues. Although agents are available to help remove uranium from the body, these agents are highly toxic and cannot be tolerated when administered over long periods. A better understanding of the medical consequences of these types of injuries and new, long-term treatment strategies are being sought by this team.

The Nuclear, Biological, and Chemical Interactions Team. Because doses of radiation that are well below the lethal range for humans can significantly compromise the body's host defense systems, the Nuclear, Biological, and Chemical Interactions Team was established to examine those interactions when low doses of radiation are combined with low doses of biological and/or chemical warfare agents. Another objective of this team is to determine interactions between small doses of radiation and the theater-specificiations or chemical agent prophylactics given to military personnel before or after deployment. There may be special health problems if their altered immune systems are challenged with low doses of radiation soon after they have been given otherwise appropriate prophylactic agents. A third objective is to determine the radiation sensitivity of biological and chemical agents that our forces may encounter. These data will form the technical basis for a strategy to neutralize such agents wherever they are found.

Projects Receive Defense Technology Objective Status. This year, AFRRI secured, for the first time, the Defense Technology Objective (DTO) status in three project areas of its program elements. (A DTO is a specifically recognized element of technology advancement that will be developed or demonstrated and has an anticipated delivery date.) Significant parts of the AFRRI radiation casualty management, biological dosimetry, and depleted uranium health effects efforts captured three of the 21 DTOs under the biomedical focus area of the Defense Technology Area Plan (DTAP). The DTAP is one component of the Defense Science and Technology Strategy; it presents the DoD objectives for the investment strategies in Applied Research and Advanced Technology Development needed to advance technologies that are critical to DoD acquisition plans, service warfighter capabilities, and the Joint Warfighter Science and Technology Plan. The product of a DTO is expected not only to enhance military operational capability but also to address other important issues such as affordability and dual-use application, both of which receive special emphasis in the Defense Science and Technology Strategy; **DTO status identifies funding required by DoD to achieve a new capability... three AFRRI project areas secured this budgetary recognition during Fiscal Year 1997.**

United States-Russian Federation Workshop on Responses to Radiation Accidents. Representatives from five nations attended the November 12-14, 1996, United States-Russian Federation Workshop on Responses to Radiation Accidents. The conference, conducted in Falls Church, Virginia, evaluated the status of knowledge regarding the effects of radiation accidents and incidents on human health and recommended further research. Topics included the management of the consequences of the Chernobyl and Urals accidents, scientific and technical support of decision-makers concerned with protecting people from the consequences of a radiation accident, and emergency medical responses to radiation accidents and incidents.

The workshop was conducted under the auspices of Direction 3 of the Joint Coordinating Committee for Radiation Effects Research (JCCRER). The JCCRER was established as a result of the 1993 conference between Prime Minister Chernomyrdin of the Russian Federation and United States Vice President Gore to address collaborative research on the health effects of ionizing radiation.

Colonel (Dr.) Glen I. Reeves of AFRRI was the workshop coordinator. Leading the U.S. delegation was Dr. Anna Johnson-Winegar, Director of Environmental and Life Sciences of the Defense Directorate for Research and Engineering, Department of Defense. The Russian delegation was led by Dr. Victor A. Vladimirov, Director of the Radiation Safety Administration of the Ministry of Defense and the Russian Federation Deputy Minister for Extraordinary Situations. AFRRI expects to publish a record of the workshop in Fiscal Year 1998.

Depleted Uranium Health Effects Workshop. As a response to continuing medical questions regarding soldiers wounded with depleted uranium munitions in the Gulf War, AFRRI hosted the November 15, 1996, Depleted Uranium Health Effects Workshop. Participants included researchers and medical professionals concerned with imbedded, ingested, and inhaled uranium. Topics included distribution and toxicology studies, carcinogenicity, fetal effects, and immunotoxicity. Other topics included x-ray fluorescence measurements, whole-body counting, clinical investigations, and patient pathology assessment. Discussions took place on the appropriate clinical response and possible changes to medical doctrine. Dr. David R. Livengood was the workshop coordinator. In addition to AFRRI, participants represented the Inhalation Toxicology Research Institute (now the Lovelace Biomedical and Environmental Research Institute), McMaster University, the Department of Veterans Affairs, and the Armed Forces Institute of Pathology. The proceedings will be published in Fiscal Year 1998.

Management of Radiation Injuries in Special Operations: A U.S. Special Operations Command Workshop. On April 8, 1997, AFRRI hosted a workshop designed to train medical components of special operations forces (SOF) attached to the U.S. Special Operations Command (USSOCOM). USSOCOM is a unified command headquartered at MacDill Air Force Base, Florida; its two prime directives are to provide trained and ready forces to the regional or combatant commanders-in-chief(CINC) and to be prepared to exercisecommand of selected special operations missions if so directed by the National Command Authority.

Although personnel assigned to SOF medical components are formally trained in elements of advanced life support (ALS), when the threat of injury from exposure to ionizing radiation exists, few elements of ALS are of use under the unique and restrictive environments of tactical special operations. The workshop, therefore, was organized around ten operational scenarios presenting a wide variety of radiation exposure possibilities that could lead to a broad spectrum of injury types. Scenarios were presented by a panel of ten experts who addressed the issues of injury assessment, treatment options under fire or under cover, casualty evacuation decisions relative to mission accomplishment, and equipment and supply considerations in mission planning. Workshop participants and panel members discussed tailoring medical management plans to fit operational realities, and the day's proceedings highlighted the need to develop and institutionalize a training course that meets the unique requirements of special operations forces. A total of 47 participants attended the workshop representing 19 SOF units of the U.S. Armed Forces and included two individuals from the British Special Air Service. Lieutenant Colonel Richard S. Lofts, United States Air Force, was the AFRRI coordinator for the workshop.

Planned Response Exercises and Emergency Medical Preparedness Training (PREEMPT) Conference. AFRRI presented specializedinformation from its Medical Effects of Ionizing Radiation Course at the first national

conference on nuclear, biological, and chemical (NBC) medical counterterrorism. The goal of the PREEMPT Conference, conducted on June 14-18, 1997, in Philadelphia, Pennsylvania, was to train emergency physicians who would in turn train additional physicians in their communities throughout the Nation. Besides those from the Department of Defense, participants included Senator Sam Nunn, Senator Richard Lugar, Representative Curt Weldon, and representatives of the Centers for Disease Control, the Department of Energy, the Environmental Protection Agency, the Federal Bureau of Investigation, the Federal Emergency Management Agency, the Public Health Service, and the Department of Veterans Affairs. Colonel David G. Jarrett, Medical Corps, United States Army, coordinated AFRRI participation.

Similar conferences will be conducted annually as part of a national program to train 200,000 local primary responders **within** the next five years. This effort re-focuses NBC response training from centralized federal, regional, and state teams to local primary responders like emergency medical technicians and paramedics. AFRRI will participate in this effort along with the U.S. Army Medical Research Institute of Chemical Defense, the U.S. Army Medical Research Institute of Infectious Diseases, the U.S. Air Force 59th Medical Wing, the Veterans Affairs Office of Emergency Medical Preparedness, the Federal Bureau of Investigation, and the Central Intelligence Agency. This training initiative is a response to the June 21, 1995, Presidential Decision Directive 39, in which President Clinton declared a national emergency to deal with the threat of NBC weapons of mass destruction. The Nunn-Lugar-Domenici Bill of 1996 requires the Secretary of Defense to establish a program to advise and train federal, state, and local officials until 1999.

Future Missions. The world remains a dangerous place when it comes to nuclear and other radiological weapons. AFRRI, a model for collaborative research between the military services, is addressing the risks by developing biomedical strategies to prevent, assess, and treat radiation injuries. Although the end of the Cold War and the ensuing collapse of the Warsaw Pact greatly diminished the threat of a large-scale exchange of nuclear weapons, the development and stockpiling of these weapons continues. An example is the discovery of a sophisticated nuclear weapons program in Iraq by the International Atomic Energy Agency after the Gulf War. Continuing uncertainties concerning the status and security of the nuclear stockpile and the growing ambitions and sophistication of terrorist organizationsunderscore the need for national and international strategies to deal with these threats. Other issues have emerged in recent years that involve radiation and demand biomedical solutions. They include the possible use of radioactivity to contaminate facilities or terrain with the aim of denying or impeding access to operational forces, the medical questions regarding soldiers who were wounded with depleted uranium munitions in the Gulf War, the increasing threat of nuclear terrorism, and the increasing role of the Department of Defense in humanitarian operations that could include missions in radiation environments. AFRRI is uniquely equipped to address the biomedical research objectives that could result from these issues.

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The National Capital Region Military Readiness and Simulation Center

"The use of Modern Technological advances such as computer simulations and virtual reality have potential to provide realistic training in battlefield techniques and procedures, and should be pursued to enhance medical readiness training."

DoD Medical Readiness Strategic Plan, 1995.

Vision. During Fiscal Years 1996 and 1997, the Office of the Dean, School of Medicine, coordinated with the Offices of the Surgeons General to create a military medical readiness training center that would provide the following: 1) teaching and the measurement of interviewing, physical examination, diagnostic and readiness skills through the use of live and computer simulations; 2) just-in-time training for TriService military medical personnel prior to deployment for world-wide contingencies, to include instruction and the assessment and documentation of clinical readiness skills; 3**)** the development and use of military medicine databases for education and training by the Military Health Services System (MHSS), both active and reserve, in the National Capital Region; and, 4) the Center would also benefit the Graduate School of Nursing.

The Simulation Center is Relevant to the Missions Established by the MHSS and the Joint Health Service Support Strategy (JHSS) for 2010. As previously stated on page one of this report, "the MHSS is committed to readiness for joint operations ..." Also, the three pillars of the JHSS are based on military medical readiness. The proposed Simulation Center will assist the TriService Surgeons General in meeting the MHSS and JHSS Vision for 2010.

Background. Recent medical education innovations and initiatives include the use of standardized patients for the following purposes: **1)** the simulation of medical conditions and the teaching of clinical skills; 2) interactive computer-based examinations; 3) numerous telemedicine applications; 4) the increased development and use of anesthesia and trauma simulators; and, 5) the multiple and potential use of virtual reality applications in surgical and other medical training. **Of significant concern to the MHSS, are 1) the mandate for the United States Medical Licensing Examination (USMLE) requiring the evaluation of clinical skills through the use of simulated patients and interactive computer-based examinations by 1999; and, 2) the Standardized Patient Examination including up to twelve different clinical stations to be added to Step 2 of the USMLE in 2001.**

Challenges to Graduate Medical Education (GME), Medical Student Teaching and Evaluations, and Medical Readiness Validate the Requirement for the Proposed Simulation Center:

GME - Graduate Medical Education is currently facing a decreasing number of patients in the military treatment facilities. Objective Standardized Clinical Examinations (OSCEs) are desirable, but difficult to schedule in an outpatient setting. For example, only one OSCE is currently offered each year to medical residents at the Walter Reed Army Medical Center (WRAMC). And, there is an increasing need for surgical/anesthesia simulations.

Medical Student Teaching and Evaluations - Both the MHSS and the civilian medical communities recognize that fewer patients are available for students to practice history taking and basic physical examination skills. It is also commonly accepted that genital and female breast examinations are optimally taught by specially trained standardized patients; and, it is desirable to provide OSCEs and simulated "end-of-clerkship" examinations for medical school students.

Medical Readiness - The Simulation Center would provide cost avoidance to the MHSS in the following areas: focused pre-deployment training; mass casualty and disaster training requirements for both the military and civilian communities; surgical sustainment training; combat stress training; and, other doctrinal training in liaison with the Defense Medical Readiness Training Institute (DMRTI).

A committee charged with the development of recommendations and proposals for implementation was established by the Dean, USUHS-SOM and the Commander of WRAMC in July of 1995. The committee considered the Simulation Center's mission potential and recommended that the Center include the following: 1) a clinical simulation area; 2) a computer-based learning center; 3) a telemedicine conference area; 4) a classroom; 5) a surgical/anesthesia simulation area; and, 5) a virtual reality application area. The committee also developed space requirements and concluded that a proposed site at Forest Glen would provide optimum advantages in the areas of ready access to WRAMC, the National Naval Medical Center (NNMC), Malcolm Grow, USUHS, DEPMEDS, and an MASCAL exercise area. Following review and endorsement by the WRAMC Space Committee and the approval of the Commanding General of WRAMC, an initial schematic design was developed for the Forest Glen site which, with the addition of a mezzanine, would provide a total of 13,500 square feet for the Center. Total costs, to include building renovation, equipment and furniture, are estimated to be $3.2 million. Annual operating costs, including contract expenses for the standardized patients, are estimated at $1.7 million. **At this time, the proposal for the Simulation Center has been approved by the TRICARE Executive Committee and the Office of Health Affairs. Funding has yet to be determined.**

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USUHS Medical Executive Training Course

"A course offered at USUHS to help commanders assure quality as …(they deal with) ... running a military treatment facility in a time of staffing reductions, budget shortfalls, and the transition to managed care."

U.S. Medicine, Volume 33, October 1997, "'Risky Business' Course Prepares Commanders," page 52.

Background. The USUHS Medical Executive Training Course is the result of a mandate by Congress that hospital commanders should receive training in the corporate approach to medical facility operations. The underpinnings of the course were developed by a TriService working group, the Joint Medical Department Oversight Group (JMDOC), which continues to oversee its structure. The one-week Medical Executive Training Course features both didactic and laboratory work. Participants are given real-life examples of the conflicts they will face as they improve access for beneficiaries, meet budget restrictions, work with private-sector partners, and cope with staffing reductions.

The Course Director, Itzhak Jacoby, Ph.D., Professor and Director of Health Service Administration, Department of Preventive Medicine and Biometrics, presents the course on the USUHS campus, except when it is more cost effective to take the course to a military center. So far, more than 190 senior executives of the MHSS have taken part in the course which has a class size of 32 in each session.

Course Content and Focus. The JMDOC, with resources made available by the Office of Health Affairs, was able to determine a set of skills aimed at merging both clinical and business components; the ultimate goal being the application of clinical epidemiology to the management of health services. At the same time that the course was being developed, the civilian external peer review program that monitored the quality of care provided in military hospitals was being transformed into the more analytic National Quality Management Program, and Dr. Jacoby's division at USUHS was asked to help with data examination. The two initiatives fit together well. The course offered the opportunity to 1) train commanders in the utility of the data emanating from quality management reviews which depict hospitals' ranking for an event - birth outcomes was the first; and, 2) to identify the factors that differentiate hospitals with good outcomes at a low cost from those with poorer outcomes at a higher cost. Following the establishment of the National Quality Management Program, medical executives are now accountable for clinical effectiveness and efficiency in the use of health care resources at their facilities. Therefore, the Medical Executive Training Course focuses on epidemiologic methods for the assessment and improvement of the quality of clinical practice through evidence-based decisionmaking.

The course covers the following areas of competency required of military hospital commanders: decisionmaking; quantitative analysis; information management; quality assurance/utilization management; strategic planning; external accreditation; epidemiologic methods; and, productivity/outcome measurement. The didactic phase includes eleven lectures conducted by recognized leaders in epidemiologic and quality improvement methodologies. The course emphasizes that the hospital commanders are significantly responsible for providing quality care and maintaining the health of the population, and for doing so in a cost-effective manner. The course also schools participants in the use of decision-support tools, the ultimate goal being the successful use of information to manage health at all levels of care, from the program and policy level, to the individual patient. The course progresses from the assessment of individual patients, their conditions and the care they receive, through the aggregation of the individual patient data and the assessment of the performance of health care delivery units at all levels (from small clinics to the MHSS as a whole). Currently being explored is the possibility of conducting a shorter version of the course for facility directors in the Veterans Health Administration.

Future Plans. The ultimate goal, following the guidance and concurrence of the Surgeons General, is to see the Executive Training Course evolve into a TriService managed care institute utilizing distance learning to bring

the course to the field. The course would be available to hospital commanders who have already attended in order to provide continuous support and technical assistance from the USUHS campus. Also envisioned are grand rounds transmitted from USUHS through the technologies of distance learning. Broadcasting quality management reports for individual hospitals would assist the hospitals' administrative staff in understanding how their facility compares with others and how the resulting ranking could be improved.

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II. ACCREDITED PROGRAMS

The University

" Public Law 92-426 established USUHS in 1972 to ensure continuity and leadership for uniformed medicine....USUHS has met every goal and mission envisioned by the founders of this remarkable institution, the West Point of military medicine."

Congressional Record, House of Representatives, September 18, 1997.

Accreditation

The Uniformed Services University of the Health Sciences (USUHS) is fully accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools (MSA/CHE). (The MSA/CHE is recognized by the U.S. Department of Education as a regional accrediting organization for institutions of higher education.) Following its establishment in 1972, USUHS received "candidate for accreditation status" from the MSA/CHE in 1977, and has retained full accreditation since 1983. In addition, the following professional organizations authorize accreditation for the University's schools and programs: The Commission on Higher Education, the Middle States Association of Colleges and Schools; the Liaison Committee on Medical Education (LCME); the National League for Nursing (NLN); the Council on Accreditation of Nurse Anesthesia Programs; the AmericanNurses Credentialing Center's Commission of Accreditation; the American Psychological Association; the Accreditation Council for Continuing Medical Education; the American College of Healthcare Executives; the American Association for the Accreditation of Laboratory Animal Care (AALAC); and the Nuclear Regulatory Commission.

The Programs of USUHS

In meeting the mandates of its establishing legislation and the standards for accreditation as an academic institution, USUHS provides the following services to the Military Health Services System: continuing education and training for health care and related professions; support for military residency training programs; special military/public health education programs; graduate education in the biomedical sciences; applied and basic research; consultative and archival services to the Department of Defense on health care and health care delivery in times of combat and contingency and humanitarian operations; and medical care for military beneficiaries provided by the USUHS clinical faculty in the course of teaching. These academic and research activities contribute to the medical knowledge and technology base available to the Department of Defense. Thousands of active-duty, adjunct USUHS faculty members, throughout the Military Health Services System, collaborate in these academic and research efforts with USUHS. Through these collaborative efforts, USUHS serves as the Academic Center for those military medical officers who seek to advance their military careers and their knowledge of military medicine. All of the services referenced above are resourced as part of the operating cost of USUHS.

USUHS Recognized as a Valuable Resource

"USUHS not only educates its own graduates, but also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and medical responses to terrorism. These courses are simply not available through civilian medical schools."

The American Medical Association, Letter to the Majority Leader of the Senate, April 7, 1997.

In addition to continuous Congressional support for the University, the following organizations have gone on the record to corroborate that USUHS is a highly qualified, unique, valuable, and required National resource: The American Medical Association; the Association of American Medical Colleges; the American Association of Academic Health Centers; the American College of Physicians; the American College of Surgeons; the American Academy of Pediatrics; the American Academy of Family Physicians; the American College of Obstetricians and Gynecologists; the American Psychiatric Association, the Society of Teachers of Family Medicine; the Organizations of Academic Family Medicine; the Society of Medical Consultants to the Armed Forces; the National Medical Veterans Society; the Amencan Veterinary Medical Association; the Departments of the Army, Navy, and Air Force; the American Legion; the Military Coalition; the National Association for Uniformed Services; the Alliance; the Reserve Officers Association; the Retired Officers Association; and, the Association of the United States Army.

International Recognition through Academic Exchanges

USUHS serves the MHSS as the Nation's only academic health sciences center for the Uniformed Services. During the past Fiscal Year, USUHS represented the MHSS through international academic exchanges during visits by 1) five senior Thai Army physicians and a nurse in February of 1997 for discussions on tropical diseases relevant to military forces; 2) the Argentine Surgeon General and his delegation in July of 1997 for discussions with USUHS faculty on military related issues; and, 3) Major General Vang Qian, President, Third Military Medical Unit of China, and four professors on September 26, 1997; their visit included meetings with the USUHS Department of Surgery and an exhibit by the Department of Anesthesiology. During all of these visits, medical, instructional, and administrative information was exchanged. Many of the programs and activities described in part I of this document substantiate the level of international respect and recognition held for USUHS throughout the military and civilian medical communities of the World.

Another example of international collaboration at USUHS, occurred through the School of Medicine Department of Pathology, which was actively involved in the organization and teaching of three courses at the King George's Medical College, in Lucknow, and the Armed Forces Medical College in Pune, India: Interferon in Biomedical Research; Viruses in Human Cancer; and, Cell-Mediated Immunity in Relation to Tropical Sciences. In each of these courses, participation took place by ten to fifteen outstanding United States faculty and approximately thirty to forty young scientists from all over India. The USUHS courses were found to be of high quality by the collaborators in India and resulted in the exchange of information on malaria, leprosy, leishmaniasis, and filariasis. These courses were especially useful to the Medical Schools in India because the knowledge of tropical diseases is crucial to the military; the knowledge gained through this collaborative effort is also essential to USUHS because these diseases are no longer restricted to countries such as India.

Board of Regents

During Fiscal Year **1997,** the USUHS Board of Regents (BOR) provided advice and guidance to the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs for both operations and policy guidance at the University. The Board ensures that operations are in the best tradition of academia and that the University is in compliance with the appropriate accreditation authorities including the Liaison Committee on Medical Education. At each quarterly meeting, the Board takes actions by voting on such issues as initiating new academic programs, appointing faculty members, granting medical and graduate nursing degrees, and granting graduate degrees in the basic sciences. By statute, the Board consists of nine civilian members who are outstanding in the fields of health and health education; they are appointed for six-year terms by the President of the United States. The Surgeons General of the Uniformed Services are ex-officio members of the Board, as is the President of the University.

New Ex-Officio Member. Rear Admiral J. Jarrett Clinton, Acting Surgeon General of the United States, joined the Board upon the retirement of Rear Admiral Audrey Manley, the United States Public Health Service.

Degree Granting. In May of 1997, the Board awarded 164 Medical Degrees, 18 Master of Nursing Degrees, and granted 33 advanced degrees in the basic sciences. Additionally, the Board granted honorary degrees to President Ronald W. Reagan, the Honorable Constance Morella, the U.S. House of Representatives, C. Everett Koop, M.D., former Surgeon General of the United States, and Donald L. Custis, M.D., Vice Admiral, U.S. Navy retired, and former member of the Board of Regents at the University.

Board Annual Report. This year, the Board prepared its first Annual Report for the Secretary of Defense. The report described the University's accomplishments and plans for the future as well as addressing issues of concern such as the recruitment of under-represented minorities. Following the completion of the Annual Report, Dr. Lonnie Bristow, M.D., Chair, established two Board committees to enhancethe Board's effectiveness. One group will concentrate primarily on issues for future annual reports, while the other committee will develop outcome measures for the University's primary product: military medical officers.

Board Members Visit Field Exercise and Hospital Ship. Dr. Bristow and Colonel Shirley Ledbetter Jones, RN, M.A., recently appointed to the Board, visited Operation Bushmaster in September, 1997. This visit allowed a first-hand examination of the week-long field exercise that culminates the four-year experience of USUHS medical students. Appropriately, the motto of the exercise is "Good Medicine in Bad Places." While at Operation Bushmaster, Dr. Bristow filmed a recruitment video aimed at prospective under-represented minority students.

In August, the Board combined a quarterly meeting with a visit to the USNS Comfort, a Navy Hospital Ship. The tour allowed Board members to become familiar with the mission and capability of Navy hospital ships.

Board of Regents Membership. Lonnie R. Bristow, M.D., Chair, BOR, Internist, and former President of the American Medical Association, San Pablo, California; Carol J. Johns, M.D., Vice-Chair, BOR, Associate Professor of Medicine, Johns Hopkins University School of Medicine (SOM), Baltimore, Maryland; Everett Alvarez, Jr., President, CONWAL, Inc., Falls Church, Virginia; Robert E. Anderson, M.D., Professor of Laboratory Medicine and Pathology, University of Minnesota SOM, Minneapolis, Minnesota; John E. Connolly, M.D., Professor, Department of Surgery, University of California at Irvine SOM, Orange, California; Alan M. Elkins, M.D., Professor of Psychiatry, University of Vermont, Portland, Maine; Shirley Ledbetter Jones, Colonel, NC, Arkansas Army National Guard and, Chief Nursing Consultant, Arkansas Department of Health's Women, Infants and Children, Little Rock, Arkansas; W. Douglas Skelton, M.D., Senior Vice President for Health Affairs and University Research and Dean, Mercer University SOM, Macon, Georgia; and, T. Burton-Smith, M.D., Los Angeles, California.

Ex-Officio Members and Advisors to the USUHS Board of Regents include the following: the President, USUHS; the Assistant Secretary of Defense for Health Affairs; the Surgeons General of the Army, Navy, Air Force and Public Health Service; the Deans of the School of Medicine and the Graduate School of Nursing; the Commanding General of the North Atlantic Health Services Support Area, Walter Reed Army Medical Center; the Commander of the Walter Reed Army Medical Health Care System; the Commander of the National Naval Medical Center; the Commander of the Malcolm Grow Medical Center; the Commander of the Wilford Hall Medical Center in San Antonio, Texas; the Commander of the Defense Medical Readiness Training Institute, Fort Sam Houston, Texas; and, the Military Advisor to the Board, General Thomas Morgan, U.S. Marine Corps (retired) of Fairfax Station, Virginia.

USUHS Office of the Brigade Commander

The USUHS Brigade Commander is recognized as the "senior active duty officer" of the University and reports directly to the President of USUHS. It is the responsibility of the Brigade Commander to ensure that the uniformed personnel assigned to the University adhere to the appropriate service specific standards set by their parent services. In addition, the Brigade Commander makes certain that the interests of the military members assigned to the University are addressed and that they remain competitive for promotion with their service peers. Under the leadership of the Brigade Commander, the uniformed students, faculty, and staff assigned and reporting to the School

of Medicine, the Graduate School of Nursing, or other University programs and divisions must participate in all activities and events as they would in any other command of the Uniformed Services. Regular formations are held; physical fitness exercises, standards, and testing are adhered to; performance evaluations are completed and rated; and, uniformed personnel are trained in the appropriate uniformed programs and customs.

The Brigade provides a clear chain of command for all uniformed members, thus allowing individuals to rapidly assimilate into their new units and the multi-service environment of USUHS. Within the Brigade structure are the Commandants for the School of Medicine and the Graduate School of Nursing. The School of Medicine has three company commanders (United States Army, Navy and Air Force) assigned specifically for military training in officership and leadership; a United States Public Health Service Officer who is currently a USUHS faculty member, provides this special training to the Public Health Service students. The company commanders are mentors for the students and they also deploy with them during each of the University's field training exercises. The uniformed faculty and staff at USUHS also conduct service-unique and combined inspections and military formations. Similar to the military academies, each student class also has its own military command leadershp structure. The students rotate positions among the class members, which increases individual exposure in the management of specific assignments, duties, and "command" roles.

Assurance of Operational Skills. The Brigade's operations departmentprovides the planning, coordination, and logistical support for the five annual military field training exercises for the first and fourth year medical students. During the summer of Fiscal Year 1997, the USUHS Brigade Commander reported to the Board of Regents that during the summer the returning second year medical students had "...participated in the normal daily operations of United States military units... in the air at the Air Mobility Command ... under the sea on Fast Attack and Ballistic Missile Submarines ... on the cold hard ground to earn the coveted Expert Field Medical Badge (EFMB) ... and in the Air Assault and Airborne qualification courses. The Brigade Headquarters Company is the enlisted support element for the University. The Company ensures that equipment, supplies, transportation, and personnel are positioned to accomplish five major field exercises. The enlisted personnel at the University are proficient in their operational support skills.

Orientation Responsibilities. Anotherresponsibility of the Brigade during the first quarter of the Academic Year covers the in-processing requirements for all students, whether they are matriculating into the Graduate School of Nursing, Graduate Education Programs in the School of Medicine, or the School of Medicine. In the case of the **165** first year medical students, Brigade letters were issued to the incoming students to include a detailed calendar of events outlining their in-processing week. This increased level of detail facilitated the orientation process and eliminated concerns over appropriate uniform, classroom and Brigade requirements. The military aspects of the University were stressed during the first week, as well as the students' responsibilities in their primary role as military officers. Student outcomes evaluations for the 1997 orientation process were positive and recommended continuing the detailed calendar of events.

A Focus on the Quality of Life and Readiness. During 1997, the Brigade refocused its efforts on a variety of issues ranging from quality of life to the professional officer development of the medical students. An Air Force quality of life survey, which will be adapted for the other Services, will be staffed during Fiscal Year 1998 via E-Mail and will be used to identify areas requiring greater command emphasis. The Brigade will resume Commander's Calls during the coming Academic Year to focus on issues dealing with "officership."

The USUHS Office of Minority Affairs

A Mission to Increase the Participation and Advancement of Underrepresented Minorities at the University. The USUHS Office of Minority Affairs was established in **1991;** its mission is to increase the participation and advancement of traditionally underrepresented minority and women students, faculty and staff at the University. The Office of Minority Affairs has established numerous programs that will lead to the successful participation of USUHS in the Association of American Medical Colleges (AAMC) Project 3000 by 2000. Examples of such programs are: 1) monthly recruitment trips to career fairs at undergraduate institutions, and to national and

regional meetings; to especially include liaison with the Military Academies; 2) six-week Prematriculation Programs for the academic enhancement of new matriculants to the USUHS-SOM have been held since 1992; ten students participated in the summer program for 1997; 3) a ten-week summer laboratory internship for undergraduate sophomores and juniors was initiated at USUHS in 1993 and has continued through 1997. This internship serves as an enrichment program and exposes students to careers in the basic sciences; 4) the USUHS Office of Minority Affairs has also participated in a grant obtained through the Bureau of Disadvantaged Assistance of the Health Resources and Services Administration of the United States Public Health Service. This grant supports the FERM-UP Program (Facilitating the Entry and Retention of Medical Uniformed Professionals) at USUHS. The current program provides a mechanism for expanding the pipeline of underrepresented minority students entering careers in medicine; 5) the Student National Medical Association (SNMA) meets monthly to discuss issues facing minorities in uniformed medicine. The SNMA has several ongoing community projects: monthly meetings at the Birney Elementary School in Southeast Washington, D.C. to present current topics in science and health and to provide role models for minority students; and, the Helping Hands Project where USUHS students and faculty provide service at a clinic for the medically underserved in Takoma Park under the auspices of Mobile Medical Care, Inc.; and, 6) the Women in Medicine and Science group meets monthly to discuss issues that are pertinent to women in uniformed and academic medicine.

An Aggressive Program that Constantly Seeks Innovative Approaches. The USUHS Office of Minority Affairs has established an aggressive program for the recruitment of underrepresented minority students and is constantly seeking creative approaches in order to increase such representation at the University. The Office also sponsors a successful Mentorship Program through which matriculating students are assigned to USUHS-SOM faculty members on an individual basis. The President of USUHS, in coordination with the Office of Minority Affairs and the USUHS Civilian and Military Personnel Offices, maintains explicit recruitment procedures at the University for both civilian and military personnel to ensure the representation of underrepresented minorities throughout the various schools, programs, and administrative areas of USUHS. During Fiscal Year 1997, the USUHS Board of Regents evidenced strong support for the University's students to reflect the diverse beneficiary population they will serve upon graduation and provided consultative assistance to the Office of Minority Affairs.

Survey on Streamlining Education in the Department of Defense

During August 1997, the University participatedin an intensive survey on streamlining education throughout the Department of Defense, as a part of the Defense Reform Initiative. As recommended by the senior staff of the Office of Force Management Policy, USUHS prepared an inclusive response to the survey. Surveys and documentation provided to the Office of the Secretary of Defense included the following: 1) the University as the umbrella organization for its multiple accredited programs; 2) the M.D. program of the F. Edward Hebert School of Medicine; 3) the Graduate Education Programs, School of Medicine; 4) the Graduate Medical Education Programs, School of Medicine; 5) the Graduate School of Nursing; and 6) the Continuing Education for Health Professionals Programs.

In the draft summary report dated August 20, 1997, the Deputy Assistant Secretary for Civilian Personnel Policy wrote on page 76 of the conclusion section that "by far the strongest academic certification belongs to USUHS which has been accredited by numerous professional credentialing organizations."

The survey process conducted by the Office of the Secretary of Defense (OSD) allowed USUHS to include its major accredited programs and services. As a result, **the preliminary survey data evaluated by the OSD analysts, based on the average course length, identified 188 student man years in addition to "the 853 students in residence" generally credited to the University**. This OSD survey data further substantiates the cost-effectiveness of the University to the Military Health Services System.

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The F. Edward Hebert School of Medicine

"As Navy's manpower specialist, I believe that USUHS is an essential and irreplaceable resource for high quality physicians who are military leaders. It is our Military Medical Academy."

Lee F. Gunn, Rear Admiral, U.S. Navy, Chief of Naval Personnel, Acting, Memorandum to the Chief of Legislative Affairs, U.S. Navy, March 27, 1997.

Accreditation

The Liaison Committee on Medical Education (LCME) accreditation process is designed to certify that a medical program meets prescribed standards, and by awarding accreditation, the LCME indicates confidence in the quality of the medical school program. The USUHS School of Medicine (SOM) first received full accreditation status from the LCME, a joint activity of the Association of American Colleges (AAMC) and the Council on Medical Education of the American Medical Association in 1979, and has maintained that status continuously to the present time. LCME site visits occurred in 1977, 1978, 1979, 1985, 1991, and 1993. The next full accreditation survey for the School of Medicine is scheduled for the 1999-2000 Academic Year. Since the first class graduated in 1980, 2,470 uniformed physicians have graduated from the USUHS-SOM.

The Selection Process - A Major Factor for Retention

"High ethical standards, the candidate's own 'internal moral compass,' compassion, honesty and integrity should be emphasized in the selection process for candidates to become the nation's physicians ... Selection should employ MCAT scores and GPAs not as predictors of success in medical school, but as threshold measures to indicate only that applicants possess the intellectual endowment and scholastic aptitude needed to meet the academic rigors. Once candidates have satisfied those threshold requirements, we should give no further weight to academic credentials but make selections on the basis of character traits and aptitude for serving others."

Jordan Cohen, M.D., President, Association of American Medical Colleges (AAMC), in his opening speech at the 108th annual meeting of the AAMC, on November 6, 1997.

The USUHS School of Medicine (SOM) selection process has been identified as one of the major factors in the success of the overall retention rates of the USUHS alumni (the current, overall retention rate is 92 percent; of those who have completed their obligated service and could leave the Department of Defense, 85 percent remain on active duty). Because there are nineteen applicants for each position, all candidates are carefully screened during the interview process to determine the following: 1) already recognized sensitivity for national, public, and/or community service, that clearly has the potential for enhancement in federal service; 2) the presence of natural and adaptable leadership skills already documented in a variety of organizations and circumstances; 3) an enthusiasm for supportive care-giving directed at individuals and groups, forming the basis for evolvement as a physician in the broad areas of medicine, and military medicine in particular; and, 4) a documented record of academic success that extends beyond the boundaries of any standard curriculum, as demonstrated through individual creativity, service, and/or research. A recent Matriculating Student Survey conducted by the Association of American Medical Colleges (AAMC) showed that compared to the national group of matriculants, USUHS-SOM candidates were more likely to select medicine as a career because of the opportunity to serve the community and to lead, and less likely to seek a medical career for purposes of prestige or high income.

Class of 2001

During August, 1997, the F. Edward Hebert School of Medicine matriculated its twenty-second class (the Class of 2001). Over 3,200 applicants representing all 50 states competed for 165 positions. There were nineteen applicants for each position which allowed a diverse and highly qualified selection of candidates with a motivation toward public service. The matriculants had a cumulative grade point average of 3.55 and a mean science grade point average of 3.54 which compared well with the 1997 national applicant pool average scores of 3.57 and 3.52. The average Medical College Admission Test scores for the USUHS class were 10.2 as compared to the average national matriculant score of 9.8. All members of the Class of 2001 hold Baccalaureate Degrees; nine hold Master of Science Degrees; and one holds a Doctorate of Philosophy Degree.

Military Unique Curriculum

"Military physicians require special training to equip them in handling both peace and war time situations which are not taught in traditional medical schools. For example, during recent military deployments in Bosnia, Somalia and the Persian Gulf, the effects of modern weapons, the stress of continuous operations, as well as the noise, toxins and other battlefield hazards were adroitly handled by USUHS-trained physicians. The knowledge imparted to these highly equipped physicians is vastly different from that taught in a civilian medical practice ... USUHS not only educates its own graduates, but also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and medical responses to terrorism. These courses are simply not available through civilian medical schools."

P. John Seward, M.D., Executive Vice President, the American Medical Association, letter to the Senate Majority Leader, April 7, 1997.

The military unique curriculum at the USUHS-SOM and the integration of militarily-relevant material into the traditional medical school subject areas combine to produce a fully accredited four-year program leading to the M.D. degree. The USUHS-SOM curriculum requires 174 scheduled weeks, which is about 20 weeks longer than the average length at the other U.S. medical schools. The traditional medical school curriculum is complemented by instruction in military medical subjects and by required participation in a variety of practical military experiences. The USUHS curriculum provides experience in emergency medicine and trauma care and the military aspects of preventive medicine, public health, behavioral medicine, plus military medical leadership. The sum of the USUHS military unique training is "approximately between 784 and 889 hours of initial military education and medical readiness training compared to that provided to the Scholarship graduates whose training ranges from 50 to 132 hours, depending on the Service" (General Accounting Office Report, "Military Physicians - DoD's Medical School and Scholarship Program," September 29, 1995, page 41).

Four Departments, Military and Emergency Medicine, Preventive Medicine and Biometrics, Medical History, and Psychiatry have the major responsibility at USUHS for teaching the military unique course material ... material that is not found in the curriculum of any other U.S. medical school. In addition to the usual first-year medical school courses, students at USUHS-SOM have required courses in military studies, military medical history, tropical medicine (diagnostic parasitology and medical zoology) and epidemiology, utilizing military data and case studies. This provides an introduction to the scope and content of military medicine and exposes each student to all of the medical systems within the Uniformed Services. The focus is on the delivery of preventive and treatment services in the "field" or deployed environment. By the end of the first academic year, each student has completed course work and experiences considerably greater than those required in the Basic Medical Officer Course for any of the Uniformed Services.

Between the first and second year, all students participate in the required five-week course, "Military Medical Field Studies." This includes a ten-day field exercise focused on small unit leadership, combat survival skills, and military medicine at First Echelon (Unit) level, followed by a four-week, supervised experience in an operational unit of their parent service performing duties appropriate to their rank. During this same period, twenty-five to thirty-five percent of each class will elect and successfully complete one of the following military qualification schools: Basic Airborne Training; Basic Air Assault School; Survival, Evasion, Resistance, Escape (SERE); Underwater Operations (SCUBA); or, Expert Field Medical Badge (EFMB).

From July 28 to August 1, 1997, twenty-one SOM students competed for the U.S. Army's Expert Field Medical Badge at Fort Stewart, Georgia, and were rated in the top three finishing places. USUHS students joined 327 non-USUHS military medical members for the one week course which included intensive written and field examinations, physical fitness, survival, and emergency medical treatment tests. Other areas of the exercise evaluated were the evacuation of sick and wounded, a litter obstacle course, CPR, and a 12-mile road march carrying full field gear. The overall pass rate for the course was 20.7 percent (72 of 348 participants). Of the 21 USUHS participants, 16 (or 76 percent) successfully completed the course, compared to 56 (or 17 percent) of the other non-USUHS military medical members who participated.

During the second year, students have additional hours of preventive medicine, including an introduction to operational (field) preventive medicine; health promotion in the military; physical fitness programs, policies, and implementation strategies; environmental and occupational health; and health services administration. The second year course in military studies focuses on two general areas: the science base for the practice of military medicine (wound ballistics, weapons effects, toxic hazards, and psychological stress) and the command and staff functions of military medicine in Joint Commands (medical planning, medical logistics, medical evacuation systems, and blood programs). The medical ethics course includes extensive material directly related to military medicine including the special concerns with sending soldiers back to combat, treatment of prisoners and civilians, and limitations imposed by the Geneva conventions. Other material stresses the resolution of hospital based ethical problems in federal institutions.

The third-year curriculum consists of clerkships in the principal specialties of medicine. Much of the instruction is provided by uniformed clinical faculty with an emphasis on teaching the special military relevance of the various clinical experiences. Of special note are the military clinical settings for instruction (military tertiary medical centers, military community hospitals, military outpatient ambulatory care clinics, and troop dispensaries on active military bases) and the patient population which includes active duty personnel presenting diseases and injuries incurred during both training and combat deployments.

USUHS medical students do their third year clinical clerkships at 24 military hospitals, representing the entire spectrum of the Military Health Service System. The third year class of approximately 165 students has eight required clinical clerkship rotations of six weeks each, for a total of 1,320 third year rotations. The fourth year class of approximately the same size has ten four-week blocks for 1,650 rotations. As a part of their training and work as medical clerks, USUHS School of Medicine third and fourth year students provide hundreds of thousands of hours of patient care-related services in these hospitals during each calendar year. Such services include examination of patients, providing post-operative care, organization and maintenance of the completion of the medical history and physical examinations of patients, assistance at surgery and delivery of newborns, and updating progress notes in patient records. These services, performed by USUHS medical students in a supervised setting, provide necessary and important support in the provision of competent medical care to the men, women, and children receiving treatment through the Military Health Service System.

In the fourth year, the Military Medicine Course places students in a simulated Joint Task Force where they are the medical staff for each of the component commands (Army, Navy, Air Force and Marine Corps). This scenario is carried into the four-week Military Contingency Medicine Course which focuses on medical support at first and second echelon levels (prehospital) for military forces deployed on combat, peacekeeping, or humanitarian assistance operations. Included is a five-day, continuous operations field exercise, "Operation Bushmaster," where

students operate battalion aid stations and a medical company under simulated combat conditions while receiving multiple evaluations of medical unit leadership, preventive medicine and patient care, medical planning, and administrative and logistic skills.

In 1997, Operation Bushmaster focused on the implementation of a joint exercise reflective of the field operations that are required for the Joint Health Service Support Strategy for 2010. **The Bushmaster students of 1997 used the Air Force's fast-response medical teams to achieve more realistic training**. The Mobile Field Surgical Team (MFST) is one of the Air Force's fast-response medical teams. The Air Force team focuses on mobility and has just five members: a trauma surgeon, an orthopedic surgeon, an emergency medicine physician, an anesthesiologist or nurse anesthetist and a surgical nurse. The MFST can perform up to ten life or limb-saving operations in 24 hours, including hemorrhage control, bowel closure, fixation of extremities and wound debridement. When a mass casualty hits, the short-term augmentation of surgical support that the MFST provides would be of vital importance. The total weight of the MFST equipment is 500 pounds. The team carries their equipment on their backs in specially designed packs. Supplies and equipment are constantly evaluated, and innovative ideas to lighten the load are tested out. The MFST has five primary missions to support or serve the following: 1) aeromedical evacuation with surgical stabilization prior to transport; 2) deployed forces during vulnerable periods; 3) as an augmentation resource for existing units during mass casualties or mission surge situations; 4) as a response team for small force conflicts; and 5) as a highly mobile unit for civilian disasters. USUHS students received valuable exposure to the MFST while at Bushmaster. When this year's mass casualty scenarios began, USUHS students were told by "headquarters" that MFST support was available. This was usually timed to coincide with air operations, thus increasing the realism of the training for the students and MFST team members.

Military Emergency Medicine, one of the few required four-week emergency medicine clerkships found in all American medical schools, provides opportunities to utilize the skills in Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS) and Advanced Trauma Life Support (ATLS) developed in the USUHS-SOM Military Contingency Medicine course. Both ATLS and ACLS are courses aimed at graduate physicians. The USUHS-SOM is the only U.S. medical school which requires these courses for all of its students.

Within the fourth-year elective program, there are numerous opportunities for international experiences in both civilian and military institutions, attendance at U.S. Army and U.S. Air Force aviation medicine courses, and assignments to operational military units or military medical research activities.

In addition to the military unique curriculum, the USUHS-SOM academic departments and faculty have structured courses to include: topics specific to military medicine and not covered in the traditional medical school curriculum; topics relevant to military medicine that receive more coverage than in the traditional curriculum; and, teaching examples and cases drawn from military medicine. This content focus is reinforced by the fact that many of the faculty (one third of the billeted basic science faculty and two thirds of the clinical faculty) are uniformed officers of the Army, Navy, Air Force and the Public Health Service, who provide experience and contextual correlations to their teaching of traditional topics.

Curriculum Review Efforts

Curriculum Review Committee. During Fiscal Year 1997**,** the Curriculum Review Committee, established by the Dean, School of Medicine (SOM), continued an extensive review of the medical school curriculum. In order to meet the accreditation standards of the LCME and the ever-changing, special needs of the Surgeons General and the MHSS, the Dean and faculty of the SOM have remained responsive and are constantly evaluating the relevance of their numerous programs.

Curriculum Renewal. In keeping with the most current themes for curriculum renewal, the SOM and the Curriculum Review Committee have attempted to do the following: 1**)** to increase the integration of basic and clinical science content across the four-year curriculum; 2) to increase student involvement in, and their excitement

about, the learning process; and, 3) to increase the integration of military medicine topics and relevancy throughout the general curriculum.

Background. Before the curriculum renewal process began, USUHS had the traditional curriculum which included two years of basic science and two years of clinical medicine. General oversight for the curriculum is the responsibility of the Dean, SOM. Policy issues were, and continue to be, reviewed and considered by a Standing Committee which is established by and reports to the Dean, SOM. An Ad Hoc Curriculum Review and Revision Committee was established and charged by the Dean, SOM, with the current phase of curriculum renewal reports. Phase I, which included the planning and recommendations for the curriculum renewal process took place from 1993 through 1995. This was followed by the implementation of Phase I recommendations during Fiscal Year 1996. Phase II, which included additional planning and recommendations, continued throughout 1996 and 1997. The implementation of recommendations from Phase II is projected for Fiscal Year 1999.

Design for Renewal Process. Phase I, 1993 through 1995, provided for the establishment of a Steering Committee with four subcommittees covering the following areas: 1) the history of medical education in the United States; 2) current experiments in curriculum reform; 3) curriculum at the USUHS SOM; and, 4) professional requirements and outcomes. Subcommittee reports and recommendations were generated and followed by a faculty review. The Dean's Office and academic departments then offered recommendations on how to best implement the Committee's recommendations.

During Phase II, 1996 through 1997, a Steering Committee and five subcommittees were established **to review or complete the following**: 1) objectives and goals; 2) an organizational template for curriculum management; 3) basic science and intra-departmental and clinical integration; 4) outcomes and evaluations of the clinical clerkships, both required and elective; 5) the establishment of topic groups; 6) subcommittee and topic group reports and recommendations (to include reviews by the academic departments and the Dean); 7) a consensus on the recommendations and implementation planning; and, 8) the implementation process.

In order to facilitate this intensive process and to diminish the natural anxiety which results from change, the Dean, SOM, held town meetings, directed the establishment of a web site for the distribution of information and discussion of issues, involved representatives from all academic departments, established topic groups to review curriculum content, and directed student involvement at all levels. As changes to the curriculum occur, the Dean has also directed that his Office establish and monitor processes for student, faculty, and TriService evaluation of the curriculum changes.

Medical Education in a Multi-Service Environment

TriService Environment and a Commitment to Instill the Principles of Military Officership. USUHS medical officers are trained in a multi-service environment which enhances their operational management skills during joint medical operations in support of not only wartime missions, but also of peace keeping, drug enforcement, natural disaster and humanitarian missions. USUHS physicians are trained to provide medical care in austere, joint-operational settings; and, they are educated to play a key role in establishing and operating deployable medical treatment facilities in a joint service environment. USUHS students are educated to understand how the Military Health Services System Wartime Medical Care Delivery System interfaces with the Air Medical Evacuation System and Theater Evacuation Policies in order to assure that military forces requiring treatment receive the appropriate level of health care at each echelon of care. The USUHS students become efficient in understanding the operational structures and vocabularies of the TriServices.

Alumni of the School of Medicine

The graduating Class of 1997 was the eighteenth class to receive Medical Degrees from USUHS. Of the total 2,470 medical school graduates, 2,249 remain on active duty in the Uniformed Services and represent approximately 17 percent of the total physician force in the Department of Defense.

USUHS graduates have a seven-year obligation that only begins after they complete their three-plus years of residency training. This obligation is exclusive of any other they may have already incurred such as graduation from one of the service academies. After 18 graduations, data is now available to document that USUHS SOM graduates are meeting the goals established by the founders of USUHS .... they are, and continue to become, a strong cadre of leaders who will ensure the continuity of military medicine.

USUHS Graduates Are Promoted Ahead of their Peers

Army: In their second year of eligibility, USUHS graduates in the Army Medical Corps were selected to Colonel (0-6) at twice the rate of those from other accession sources; USUHS - 81.2 percent; Other Sources - 38.3 percent.

Navy: 100 percent of the USUHS graduates considered for in-zone promotion to Navy Medical Corps Captain (0-6) were selected compared to 49 percent from the other accession sources.

Air Force: In the Air Force, for the second year in a row, 60 percent of the Air Force Medical Corps officers selected for early promotion were USUHS graduates. For those in the regular zone, 83.3 percent of the USUHS graduates being considered were selected for Colonel (0-6) compared to an overall selection rate of 3 1.1 percent for the Air Force Medical Corps.

Documented Operational Readiness

General Accounting Office Endorsement. In 1995, the General Accounting Office (GAO) confirmed that "43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles." The GAO reviewers also pointed out that they "perceive that University graduates have a better appreciation of and greater satisfaction with the physicians's role within the military" than other accession sources (General Accounting Office Report, "Military Physicians - DoD's Medical School and Scholarship Program," September 29, 1995, page 43).

Significant Representation in Special Forces or Operations Units. The USUHS-SOM graduates are currently serving in operational, specialty, and leadership positions throughout the TriServices. In May of 1996, the Chief of the Medical Operations Division for the Department of the Army at Fort Bragg, North Carolina, wrote the following to the USUHS Dean of the School of Medicine: "The Uniformed Services University of the Health Sciences is now the Army Special Operations Forces' (ARSOF) most important source of physicians. Of 9 positions in the United States Army Special Operations Command (USASOC) opening this summer, 6 are being filled by USUHS graduates. In addition, 3 of 5 senior physicians in ARSOF are graduates of USUHS. The USUHS experience sets these physicians apart from those acquired through other accession methods and is critical in the mission readiness of ARSOF."

To date, 717 Doctor of Medicine Degrees have been earned at USUHS by U.S. Air Force graduates. In 1996, USUHS graduates accounted for 27 percent of all Air Force Special Operations physicians; 63 percent of the special operations physicians assigned to Hurlburt Field were USUHS alumni. Air Force graduates have participated in numerous military and humanitarian efforts at home and abroad, to include: Operation Just Cause (Panama); Operations Desert Shield and Desert Storm; and, Operation Uphold Democracy (Haiti). USUHS Air Force graduates provided emergency medical assistance following the Khobar Towers terrorist bombing in Saudi Arabia in 1996 and after the crash of an Angolian cargo plane in the Congo in 1997. Numerous USUHS alumni serve on the Air Force's Flying Ambulatory Surgical Trauma Teams. USUHS graduates were selected as the Air Force Flight Surgeon of the Year in 1986, 1987, 1988, and 1993; the Air Force Materiel Command Flight Surgeon of the Year for 1995 and 1996; the USAF Europe Flight Surgeon of the Year for 1996; the PACAF Flight Surgeon of the Year for 1995; and, the Air Force Special Operations Command Flight Surgeon of the Year for 1995.

Special Achievement or Recognition

Class of 1980 - Colonel William C. Lloyd, III and Colonel Howard S. Heiman were awarded the Title A Proficiency Designator in 1996, the highest level of professional recognition within each of the Army Medical Department's corps specialties or subspecialties.

Class of 1981 - Colonel William Fox, Jr., U.S. Army, received one of the Chairman of the Joint Chiefs of Staff Writing Awards for 1997. His paper, "A Military Medical Operations in Sub-Saharan Africa: The DoD 'Point of Spear' for Engagement and Enlargement"was accepted for publication by the Security Strategy Institute. The article will also be published by the National Defense University. Fox, who recently completed a year's study at the Army War College, is the hospital commander at Fort Polk, Louisiana, and a surgeon with the Joint Readiness Training Center.

Class of 1981 - Captain Konrad Hayashi, U.S. Navy, was assigned as the Force Medical Officer for Commander, Naval Surface Force, Atlantic, Norfolk, Virginia.

Class of 1981 - Lieutenant Colonel (colonel select) Ann E. Norwood, MC, U.S. Army, assistant professor and assistant chair, USUHS SOM Department of Psychiatry, and assistant professor of neuroscience, was named the William C. Porter Lecture Award winner at the 103rd meeting of the Association of Military Surgeons of the United States in November 1996. The award recognizes an outstanding contribution to the field of psychiatry.

Class of 1981 - Colonel Mary A. O'Hara, U.S. Army, was awarded the Title A Proficiency Designator in 1996. She is a pediatric ophthalmologist at the Brooke Army Medical Center in San Antonio, Texas.

Class of 1982 - Colonel Roger Bisson, U.S. Air Force, is commanding the 95th Medical Group at the Edwards Air Force Base in California.

Class of 1982 - Lieutenant Colonel (colonel select) James Geiling, U.S. Army, has been named to the U.S. Army Medical Department's Order of Military Medical Merit, which recognizes medical excellence, and promotes good fellowship and esprit de corps. He is assigned to the USUHS Casualty Care Research Center.

Class of 1982 - Commander Dean Bailey, U.S. Navy, was assigned as the Force Medical Officer for Commander, Naval Air Forces, Atlantic, Norfolk, Virginia.

Class of 1983 - Lieutenant Colonel (colonel select) Clifford Cloonan, U.S. Army, has been named Dean of the Joint Special Operations Military Training Center, John F. Kennedy Special Warfare Center and School, Fort Bragg, North Carolina.

Class of 1985 - Major Mark Bagg, U.S. Army, led a group of pediatric orthopedic specialists from the Brooke Army Medical Center, Texas, on a two-week medical readiness training exercise in Tegucigalpa, Honduras, in 1997. The nine member team was accompaniedby health professionals from the Honduran Ministry of Health.

Class of 1985 - Lieutenant Colonel Charles, D. Bolan, Jr., U.S. Army, was one of two USUHS graduates to receive the Army Surgeon's General Physician Recognition Award for 1996. The award recognizes Bolan's achievements in the Persian Gulf War, where he served as the blood officer for the 82nd Airborne Division. According to medical experts, his development of comprehensive blood storage and transfusion policies continues as state-of-the-artfor combat zone medicine.

Class of 1986 - Lieutenant Colonel Rhonda Cornum was selected as the Army's recipient for the 1996 Chairman of the Joint Chiefs of Staff Award for Excellence in Military Medicine. This award is funded by the Zachary and Elizabeth Fisher Armed Forces Foundation and includes a $50,000 research grant. One person from each of the military medical services is selected every year. Comum was a flight surgeon with a helicopter attack

squadron during Operation Desert Storm when her aircraft was shot down over Iraq while on a search and rescue mission; five of the eight crew members were killed. Comum and the other two survivors were badly injured and taken prisoner. With both arms in casts, she continued to treat her fellow soldiers' injuries until they were released. Following the war, Comum continues to speak publicly about her experiences in the Gulf and she has also written a book, She Went to War. In addition to her grant work at the Brooke Army Medical Center, LTC Comum continues her extensive research in blood product preservation and has developed a system where stored blood can provide enhanced oxygen delivery.

Class of 1986 - Lieutenant Colonel Chris Marino, MC, U.S. Army, received the Jay P. Sanford Distinguished Alumnus Award in March 1997. Marino was recognized in part for volunteering for several high profile operational assignments, including Haiti and Somalia. In Somalia, Marino was a battalion surgeon with Quick Reaction Force (QRF) Somalia. During a rescue operation of American soldiers trapped behind enemy lines in Mogadishu, the QRF was ambushed. As a battle ensued, Marino provided immediate medical assistance in the dark, crawling from patient to patient as bullets flew overhead. For his actions, he earned the Combat Medic Badge in 1993, the Bronze Star with Combat V in August 1994, and a second Bronze Star in September of 1994. Marino was elected into the Order of Military Medical Merit in 1994. In 1996, Marino received the General Lewis Mologne Award for demonstrating outstanding commitment to the care of patients, a deep sense of loyalty to the country and displaying the greatest respect for truth, honesty and dedication in the practice of medicine.

Class of 1988 - Major Barrington Nash, U.S. Army, is the latest USUHS alumni to join the White House medical staff. Currently, four of the five White House physicians are USUHS graduates.

Class of 1988 - Major Matthew Ricks, U.S. Air Force, was named Air Force Material Command's Flight Surgeon of the Year for 1996.

Class of 1988 - Commander Stephen C. Schallhorn, MC, U.S. Navy, was selected as the Navy's 1997 recipient of the Chairman of the Joint Chiefs of Staff Award for Military Medical Excellence. Schallhorn will use the $50,000 grant award to continue his research in photorefractive keratectomy, a laser procedure used to correct nearsightedness which he introduced to the Navy. Commander Schallhorn made a name for himself in the aviation community before becoming a physician. He was designated a Naval Aviator in 1978 and attained the highest grade ever recorded in his training squadron. He also qualified as an F-14, A-4, and F-5 aircraft test pilot. Schallhorn served as a combat instructor at the Navy Fighter Weapons School (TOPGUN) from 1982-1984 and later became an instructor to TOPGUN faculty.

Class of 1990 - Major Ursula Chesney-Graham, U.S. Army, was recognized by Chapter East (Region 1) of the American Academy of Pediatrics for her services to families at the Womack Army Medical Center at Fort Bragg, North Carolina.

Class of 1991 - Captain Bruce Edwards, U.S. Air Force, was named the U.S. Air Forces in Europe Flight Surgeon of the Year for 1996.

Class of 1991 - Captain Karen K. Kerle, U.S. Army, was one of two USUHS graduates to receive the Army Surgeon's General Physician Recognition Award for 1996. Kerle was awarded for her achievements in military and academic medicine. She created a developmental disabilities clinic at Fort Benning's Martin Army Community Hospital that supports families with disabled children by integrating primary care with the hospital's Exceptional Family Member Program. Captain Kerle is also one of the originators of the Fort Benning "Tar Wars" Children's Tobacco Education Program, which she coordinates with all military family practice programs.

Class of 1991 - Lt. Commander David Lane, U.S. Navy, received the New York Tidewater Chapters History of Military Medicine Essay Award at the annual convention of the Association of Military Surgeons of the United States in November 1996. The award recognizes an essay addressing a significant aspect of the history/evolution of military medicine.

Class of 1992 - Major Charles Buckenmaier, MC, U.S. Army, received the Charles A. Hufnagel Residents' Research Award at the 17th annual USUHS Surgical Associates Day in April of 1997. His paper, "Comparison of Antiadhesive Treatment," one of four selected for the conference, was selected as the award winner.

Class of 1992 - Captain Eric Hanson, U.S. Air Force, received the Donald F. Hagen Young Physician Award at the Association of Military Surgeons of the United States' annual meeting in November, 1996. The award recognizes early accomplishment and demonstrated future potential in federal health care leadership, or to the international community in operational or preventive medicine, including research.

Class of 1992 - Captain Eric Hoover, U.S. Air Force, was honored by Chapter West (Region 8) of the American Academy of Pediatrics., He is stationed at Okinawa, Japan.

Class of 1992 - Lieutenant Scott Maurer, U.S. Navy, was recognized by Chapter East (Region 1) of the American Academy of Pediatrics for his service to families at the Naval Hospital in Patuxent River, Maryland.

Class of 1993 - Captain Robert Lutz, U.S. Army, ranked fifth in the country out of 3,000 residents on his emergency medicine in-service examination. He also received the 1997 Madigan Army Medical Center's Wolcott Award which recognizes the graduating resident with the best clinical and academic ability.

Class of 1993 - Lieutenant Daniel Shine, U.S. Public Health Service, a fourth year psychiatry resident at Dartmouth-Hitchcock Medical Center in New Hampshire, received the following awards: the Abraham S. Lenzer, M.D., Award for Excellence in Consultation/Liaison Psychiatry; and, the Alma Hass Milham Award for Human and Ethical Values. Both awards are presented by the Dartmouth Medical School to psychiatry residents. Lt. Shine also received the Resident of the Year Award presented by Pfizer Pharmaceuticals.

The 1997 Combined Graduation of Interns, Residents, and Fellows of the Walter Reed Army Medical Center and the National Naval Medical Center:

Class of 1988 - Major Albert Porambo, MC, U.S. Army, received the Outstanding Faculty Member Award, PGY-3, from the Department of Psychiatry.

Class of 1989 - Major Lisa K. Moores, MC, U.S. Army, was recognized with two awards: the 23rd Annual Bailey K. Ashford Clinical Research Award for her research entitled "Capnography: A Novel Method to Evaluate Airway Function in Chronic Obstructive Lung Disease" and the 20th Annual General Graves B. Erskine Award - Fellow Award - which is presented to the year's outstanding fellow. Dr. Moores, who completed a Pulmonary Disease and Critical Care Medicine fellowship at WRAMC, was selected for the award because she "exemplified the concerned, compassionate, yet highly skilled and intuitive physician...and had proven herself a leader, managing highly complex wards with efficiency and diplomacy."

Class of 1990 - Major Jennifer Menetrez, MC, U.S. Army, received the Outstanding Staff of the Year - Golden Spoon Award - from the Physical Medicine and Rehabilitation Department.

Class of 1991 - Major Alexander Stojadinovic, MC, U.S. Army, received the 23rd Annual Bailey K. Ashford Clinical Research Award, which is presented to the house staff member judged to have accomplished the most outstanding research during training. Dr. Stojadinovic was recognized for his research in the General Surgery Service at WRAMC on heat shock proteins and their role in ischemia and reperfusion tissue injury.

Class of 1993 - Captain Mark Owens, MC, U.S. Army, received the Albert J. Glass Award from the Department of Psychiatry.

Class of 1994 - Major David Vetter, MC, U.S. Army, received the Outstanding Resident Award from the Department of Medicine.

Faculty of the School of Medicine

Clinical and Consultative Services Generated Over $6.7 Million in Cost Avoidance in 1997. The affiliated Medical Treatment Facilities (MTFs) in the National Capital Region (the National Naval Medical Center (NNMC), the Walter Reed Army Medical Center (WRAMC), and the Malcolm Grow Air Force Medical Center (MGMC) use the services of the USUHS faculty for the provision of health care.

The USUHS civilian and military clinical faculty members, as a part of maintaining their credentials and level of proficiency, provide medical services and consultation to the hospital patients and staff and teach and supervise residents. In order to meet national accreditationstand, all teaching hospitals must provide both patient care and teaching/supervision of medical students, interns and resident physicians. Therefore, cost avoidance to the Department of Defense is generated by the hours of clinical service and medical expertise provided by the USUHS civilian and military faculty. Twelve USUHS School of Medicine (SOM) academic departments are providing clinical and consultative support to DoD that was projected to total 129,364 hours in Fiscal Year 1997, for a calculated annual cost avoidance of $6,790,939 in manpower costs.

SOM Department	Hours	Manpower Cost*
Anesthesiology	11,302	$ 640,959
Dermatology	832	$ 50,560
Family Medicine	10,817	$ 597,879
Medicine	13,800	$ 736,144
Military and Emergency Medicine	1,894	$ 99,477
Neurology	5,750	$ 284,400
Obstetrics & Gynecology	9,487	$ 491,899
Pathology	4,986	$ 207,873
Pediatrics	14,034	$ 711,301
Preventive Medicine & Biometrics	2,216	$ 120,100
Psychiatry	7,917	$ 384,885
Radiology & Nuclear Medicine	8,969	$ 553,279
Surgery	37,360	$1,920,120
Total	**129,364**	**$6,798,876**

*Cost avoidance was calculated by multiplying the hours worked by the hourly cost. The hourly cost was calculated by dividing the annual cost (salary and benefits) of each faculty or staff member by the number of hours per work year (2,087); totals include night call coverage.

Research

Militarily Directed Research. The research programs taking place at USUHS especially seek to meet the needs of the military. USUHS faculty (over 200 investigators), adjunct faculty, participants in the USUHS graduate and graduate medical education programs, and collaborative endeavors, both national and international, are at the forefront of the innovative, practically-motivated research that is taking place in the Military Health Service System. A few of the USUHS research program/centers were described in the beginning section of this report: the USUHS Casualty Care Research Center; the USUHS Traumatic Stress Center; the Centers for Preventive Medicine and Public Health; and, the Armed Forces Radiobiology Research Institute.

Research Administration. The Office of the Vice President for Research was recently established at USUHS to facilitate, promote and oversee the researchactivities at the University. The Office of Research monitors, reviews, and coordinates approvals for all matters dealing with research at the University, to include the following responsibilities: identification of funding sources (to include a database on research opportunities available on the Office of Research's Home Page); pre-award administration; post-award administration; grant award and receipt; institutional review board (IRB) approval; and, regulatory compliances.

Some 450 research protocols at USUHS cover a rich variety of scientific areas, including basic biomedical areas of high relevance to the mission of the Military Health Service System, such as: infectious diseases; sepsis; combat casualty care; operational medicine; nuclear, biological, and chemical interactions; Defense women's health issues; TriService nursing; military performance factors; and, responses to the stresses of military life (**see Appendix A for Examples of Individual Achievements and Recognition - Billeted and Adjunct USUHS Faculty).**

Military Infectious Diseases. Research protocols at the USUHS study diseases of high military relevance for troop deployment and sustainment. For example, malaria is endemic in many areas where the military deploys its fighting forces; recent technological advances conducted by University researchers have made it possible to predict mosquito population levels and disease transmission risk within precise areas and time frames. By using satellite imaging and remote sensing, USUHS researchers assist in predicting high-risk locations for malaria occurrence. These predictions focus disease control operations and conserve scarce finances and human resources. Some of the infectious diseases being studied at USUHS include the following: malaria; Venezuela Equine encephalitis (VEE); hepatitis and infections caused by Streptococcus pneumoniae, Enterohemorrhagic Escherichia coli, Shigella, Leishmania braziliensis, and Bartonella. Some additional areas of research focus include: determination of the most appropriate site for effective immunization against a variety of microbial agents; identification of heretofore unknown bacterial virulence genes; and, analysis of how selected viruses assemble and cause pathology.

Combat Casualty Care. Numerous research protocols dealing with combat casualty care focuses on five general subject areas: 1) blood preservation and delivery (i.e., effects of cross-linked hemoglobin in traumatic brain injury; global and local responses to profound hemodilution; and, environmental hazards and heme regulation); 2) treatment of nerve injury and healing (i.e., low power laser irradiation on in vivo nerve regeneration; and, neurocytokines and plasticity in sensory nerve injury); 3) prophylactic intravenous antibiotics for penetrating eye injury; 4) understanding, preventing and treating endotoxic shock; 5) wound healing and sepsis (i.e., characterization of inflammation and its mediators); and, 6) the treatment of traumatic injury (one example is the Defense and Veterans Head Injury Study. This congressionally-mandated research effort has continued to collect data on the outcome of head injury seen at selected Military and Veterans Administration Medical Centers. Further progress continues to be made in the study comparing intensive cognitive rehabilitation with less costly management protocols. The related research and educational endeavors of this effort proceeded throughout 1997). Research contributed by USUHS faculty relating to combat casualty care continues to provide rapid diagnostic methods and treatments which ensure military readiness, excellent care for deployed fighting forces, and the rapid return of the injured and sick to active duty.

Military Operational Medicine. Many of the research protocols in the subject area of military operational medicine fall into three general categories: 1) factors decrementing human performance (i.e., acute and chronic Post Traumatic Stress Disorder (PTSD); and, hyper- and hypothermia); 2) factors increasing military readiness (i.e., human performance models for exercise; reduction in acute and chronic injuries); and, 3) endocrine control and performance (endocrine and immune interactions with exercise; and, human stress and trauma: impact on intracellular calcium regulation).

The Neuroscience Research Program - A Collaborative Effort

A Multidisciplinary Approach. Neuroscience is the study of the structure, development and function of the nervous system. This is the most complex organ in the body and it plays a regulatory role controlling or influencing the functions of all physiologic systems. Understanding the ways in which the brain and peripheral

nervous system function requires a multidisciplinary approach. Techniques from molecular biology to experimental psychology are all required to generate an understanding of the interrelated connections and functions of nerve cells and their supporting glial cells.

Knowledge from these and many other fields is required to understand the operation of even a small functional component of the brain. Over the last two decades, it became apparent to scientists working to understand the nervous system that an interdisciplinary approach to research and education in neuroscience was the only way a comprehensive understanding of the functions of the nervous system can be achieved. Interdisciplinary programs in neuroscience such as those offered at USUHS draw from the skills of many basic science disciplines in an integrated effort to expand the knowledge of how the brain works, of how it becomes disturbed in various psychiatric and neurologic diseases, and of how we can use drugs or behavioral approaches to modify and correct malfunctions when they occur. The interdisciplinary USUHS Neuroscience Program has 41 faculty members in seven basic science departments: Anatomy, Biochemistry, Microbiology, Military and Emergency Medicine, Medicaland Clinical Psychology, Physiology, and Pharmacology; and, four clinical departments: Psychiatry, Neurology, Pediatrics, and Anesthesiology. The research conducted by these 41 investigators spans the field from molecular neurobiology to behavior and clinical neuroscience.

Program of Study. The Neuroscience Program at USUHS includes five areas of study: **1) neuronal development and plasticity** (investigators study how nerve cells establish specific and highly complex connections; how memories are formed and stored; and, how the brain processes information ... how we develop specific brain skills); 2) **molecular and cellular neurobiology** (study is conducted on how neurons communicate with each other; what chemicals are used; what signalling pathways are involved; what regulatory influences affect this process; and, what mechanisms can be invoked to protect neurons from dying in response to ischemic brain injury); 3) **environmental adaptation to stress and injury** (investigators study how the nervous system responds to injury such as head trauma or environmental toxins; or, to disease, such as Alzheimer's; studies are also conducted on environmental effects such as stress or prior drug exposure on the behavioral responses to acting drugs, particularly drugs of abuse); 4) **neural regulation of physiologic functions** (studies concentrate on how the brain controls the cardiovascular system; how mental stress contributes to cardiovascular disease; and, the regulatory mechanisms that cause our hearts to "race" when we are fearful); and, 5) **clinical neuroscience** (investigators study how brain injury subsequent to head trauma can be managed or treated; the USUHS Traumatic Stress Center conducts much research in this area).

Collaborative Atmosphere. The Neuroscience Program at USUHS grew out of the "grass-roots" efforts of the faculty to establish an interdisciplinary graduate program. Research efforts have now expanded to create a collaborative atmosphere; USUHS investigators are working together on joint grants and program projects which bring students and faculty together across department boundaries. The Neuroscience News, a USUHS newsletter published by the Neuroscience Program, is a successful resource where the 41 investigators share itineraries of USUHS papers to be presented at various meetings and where calls for abstracts and registration for poster displays are advertised. As time progresses, future goals of the program include: 1) the provision of centralized adjacent space and core facilities; 2) additional stipend support for the graduate students; 3) provisions for recognizing the military medical research scholars; and, 4) resources for recruitment and travel expenses for interviewing faculty and graduate students.

Molecular and Cell Biology - An Interdisciplinary Program

Background. Modem biology has been revolutionized by developments in molecular and cellular biology. The developments cross traditional disciplines in such a way that they touch virtually every aspect of biomedical investigation. In recognition of this fact, some three years ago, the USUHS School of Medicine Office of Graduate Education formally established an interdisciplinary Graduate Education Program in Molecular and Cell Biology. The faculty, some 40 individuals, are full-time members of the Departments of Anatomy and Cell Biology, Biochemistry, Medicine, Microbiology and Immunology, Pathology, Pharmacology, Physiology, and in a few instances, other departments at the University who share an interest in cell structure and function at the molecular and cellular level.

A majority of the faculty have NIH funded protocols and have recently published in prestigious journals including Science, Immunity, PNAS (Proceedings of the National Academy of Sciences), and the Journal of Experimental Medicine.

The Program provides an opportunity for students to pursue classroom and laboratory study leading to the degree of Doctor of Philosophy in Molecular and Cell Biology. In addition, the Molecular and Cell Biology Program serves as an opportunity for facilitating educational and scientific interactions between graduate and medical students and faculty at USUHS who share a common interest and contemporary approach to the study of cellular processes.

Program of Study. The program of study is divided into two portions; coursework in both fundamental and advanced areas of molecular and cellular biology and research toward the Doctor of Philosophy Degree. The first year consists of courses in biochemistry, cell biology, immunology, bacterial and eucaryotic genetics, recombinant DNA techniques and microcomputers. To meet these requirements, the Molecular and Cell Biology (MCB) Program has developed several core courses, including Cell Biology (directed by Dr. Mark Adelman); Genetics (directed by Dr. Fern Murdoch); Recombinant DNA Techniques (directed by Dr. Gabriela Dvekslar); and Computer Science (directed by Dr. Leon Moore). These are required courses for all MCB students. The second year curriculum offers advanced courses in a wide variety of disciplines, including virology, biochemistry, immunology, molecular endocrinology and cell biology. Throughout some four years of graduate study, students participate with selected faculty in a journal club designed to foster interaction across disciplines and develop skills required for data presentation and analysis. A biweekly Molecular and Cell Biology Seminar Series brings renowned scientists to the University. Students also attend seminars offered by the individual SOM departments, the Interdepartmental Neuroscience Program, and the National Institutes of Health (NIH). Students participate in researchrotations in three laboratories of their choice during the first year. From these rotations, the students choose a mentor for their doctoral research; the mentor guides the student through the completion of a research project and the dissertation leading to the Ph.D. (In addition to funding provided by DoD, the program has also obtained funding from Biotechnology Companies for the support of seminars and graduate student activities.)

Immunology - USUHS Was Ranked 19th Among All Institutions in Immunology Research from 1990 through 1994. The Molecular and Cell Biology Program includes a strong group of immunologists. In a recent survey of research institutions, Science Watch identified 1,500 of the most cited immunology papers published over the last five years in 67 Institute for Scientific Information (IS1)-indexed immunology journals, as well as immunology papers published in Science. Nature, and the Proceedings of the National Academy of Sciences. Using ISI's High Impact Papers in Immunology database, Science Watch examined the 300 most-cited papers of each year from 1990 to 1994. From this group, the 25 most highly cited authors and institutions were identified and ranked both by total citations - a measure that often reflects publication output -and by citation impact - the average number of citations per paper." USUHS's citation impact of 89.2 ranked it in the 19th position for research institutions world-wide.

Center for Combat Casualty and Life Sustainment Research

The Naval Medical Research and Development Command (NMRDC), the Naval Medical Research Institute (NMRI), and USUHS entered into a memorandum of understanding to establish, operate, and fund a Center for Combat Casualty and Life Sustainment Research in the Department of Pathology, USUHS School of Medicine, in October, 1996. The Center is considered to be a joint venture of USUHS, NMRDC, and NMRI. All three organizations have agreed to contribute resources to the establishment and operation of the Center.

The Center strengthens collaborative research and development programs between the participating organizations in broad research areas that support combat casualty care initiatives in life sustainment. Future Navy fighting requirements have emphasized the need to limit the medical support on site, and at the same time to enhance the capability to stabilize severely injured and hemorrhaging casualties with minimal local support capabilities. Definitive care and treatment subsequent to delayed resuscitation procedures would be provided by fixed medical

facilities shipboard or from CONUS facilities following casualty evacuation and transport. The initial emphasis for the primary participants within the Center, therefore, is directed at casualty stabilization and sustainment modalities which permit a delay in the application of definitive resuscitative measures, care, and treatment. Current therapeutic options do not exist to meet these needs; research and development programs are currently in process at the Center to address the biomedical requirements as determined by the Services. For instance, research is directed at prolonging tolerance to systemic ischemia, and to develop means to preserve brain and other vital organ functions in casualties following extended circulatory collapse. It is expected that the investigators from NMRDC, NMRI, and USUHS will significantly benefit from the increased collaborative and cooperative research efforts taking place at the Center. Furthermore, the collaborative effort will prevent duplication of effort and the cost-effective use of resources.

Division of Internal Military Medicine

The Department of Medicine established a new Division of Internal Military Medicine. Focusing on the military aspects of internal medicine, the Division will address an array of issues, including infectious, toxic and other environmental hazards potentially encumbering future deployments. Additionally, this Division will deal with special problems facing internists when delivering primary or specialty care in austere settings, such as those encountered during a war-fighting scenario or during a humanitarian relief mission. The Division will cultivate expertise in these and other military-relevant areas and assure that critically important information and techniques are well taught to medical students and other military trainees. The newly formed Division will foster specific research topics appropriate to its military focus. Major Michael Roy, MC, United States Army, was appointed as Director for the Division.

Summary of Research Efforts

The overall quality of research at USUHS and the faculty's related academic achievements is evidenced by the successful competition of the USUHS faculty for research funding from numerous federal agencies, including the National Institutes of Health, the National Science Foundation, and other agencies, private companies, voluntary societies, and private foundations. USUHS has over 450 research projects currently underway: 1) extramural funding sources include 24 DoD components (representing over 70 percent of all extramural research funding); 2) thirteen additional federal sources; 3) eleven non-profit organizations (the Alzheimer Association; the American Gastroentological Association; the American Heart Association; the Children's National Medical Center; the Fisher Foundation; the Josiah Macy Foundation; the MacArthur Foundation; the National Foundation for Cancer Research; the National Multiple Sclerosis Society; Robert Wood Johnson; and the World Health Organization); and, 4) thirteen for-profit entities (i.e., Merck; Miles Laboratory; Smith-Kline Beecham; and, Wyeth-Ayerst Research). Peer reviewed publications totaled 321 in 1995; 367 in 1996; and, approximately 424 in 1997. Over 10,000 peer reviewed papers, review articles, books, book chapters and abstracts have been published by USUHS faculty since 1976.

Special Events

Research Day. The Office of Research successfully coordinated the USUHS Research Day which was held on 24-25 March, 1997. The John W. Bullard Lecture speaker was Dr. June Osborn, President of the Josiah Macy, Jr. Foundation. Dr. Osborn spoke on the "Aids Epidemic: Science in the Nick of Time?" The event was well attended by USUHS faculty and USUHS adjunct faculty from the National Capital Region; a massive tent was implemented for the display of hundreds of poster presentations. Research Day originated several years ago to enhance the faculty's ability to share their research efforts across the twenty Departments and Schools at the University.

Packard Lecture. Following the 17th USUHS Surgical Associates Day events, the USUHS Faculty Senate sponsored the Packard Lecture on April 7, 1997. In coordination with the Department of Surgery, the world-renowned surgeon, Michael E. DeBakey, M.D., presented the 1997 Packard Lecture; he spoke on the lessons learned

from WWII military medicine issues to over 400 faculty and adjunct faculty members and invited guests of the University.

Surgical Meetings. Quarterly meetings took place during Fiscal Year 1997 which were dedicated to students on surgical rotations including anesthesia, general surgery, orthopaedics, and urology. The first occurred in January when the program was shared with the Pediatrics/Pediatric Surgery Day; the second meeting was held during the annual 17th USUHS Surgical Associates Day in April; the third meeting transpired at the 12th Surgery for Trauma Day in August, 1997; and, the 15th International Surgical Day was held in October of 1997.

Department Seminars. Most of the Departments in the School of Medicine hold seminars. For example, on November 4, 1997, the Department of Pharmacology hosted a seminar on the Regulation of Neuronal Gene Expression by Specific Patterns of Neural Impulses. R. Douglas Fields, Ph.D., Head of the National Institute of Child Health and Human Development, National Institutes of Health, was the guest speaker.

Sponsorship of Conferences on Hyperlipidemia and Hypertension. The USUHS Center for Excellence in Cardiovascular Medicine, Department of Medicine, sponsored Conferences on Hyperlipidemia and Hypertension. Conference participation and attendance included both civilian and multi-service personnel from across the United States. Speakers included national and international experts in cardiovascular medicine.

Faculty Development Program

Background. During Fiscal Year 1997, a collaborative effort among the Office of the Associate Dean for Medical Education, the Associate Dean for Faculty Affairs, the Department of Family Medicine (Cindy C. Wilson, Ph.D., C.H.E.S.), the Faculty Senate, and the Civilian Human Resources Division resulted in the development and the initiation of the first University-Wide Faculty Development Program. Based upon a needs assessment of the primary care clinical departments, other clinical departments, local Family Practice teaching sites, Graduate Medical Education faculty and staff, Graduate School of Nursing faculty, and Continuing Education for Health Professionals faculty and staff, a year-long program was approved for Continuing Health Education credit for both physicians and nurses. Participation increased from two departments and eight faculty at the first seminar to 15 departments and 48 faculty at the most recent session.

Program Activities in 1997. Between May and August of 1997, five presentations were provided to the USUHS faculty: 1) Faculty Development and Academic Activities in the Primary Care Arena; 2) Why Do Research? How to Begin a Project: An Algorithm for Research, Teaching, and Clinical Practice; 3) How to Construct an Effective Presentation; 4) the Art of Visual Presentation; and, 5) Computing and Communication. Efforts to develop a University Faculty Handbook are well underway; a final product will be available in Fiscal Year 1998. Also during late 1997, an orientation program was developed and implemented for new faculty members of the University. The orientation provided an overview of the available teaching and research resources at USUHS to ensure both effectiveness and efficiency.

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The Graduate Education Programs of the School of Medicine

"...As the last Medical Degree recipient leaves this stage, the Uniformed Services University of the Health Sciences...has graduated 2,470 medical officers to join the ranks of the United States Army ... Navy... Air Force... and the United States Public Health Service medical departments. Additionally, the School of Medicine has conferred 476 Basic Science Degrees ... including 39 Master of Science, 248 Master of Public Health, 21 Master of Tropical Medicine and Hygiene, 1 Master of Military Medical History, and 167 Doctor of Philosophy Degrees. In addition to these 476 degrees, the Graduate School of Nursing has conferred 38 Master of Science in Nursing Degrees."

Michael N. Sheridan, Associate Dean for Graduate Education,
Commencement Remarks, May 17, 1997.

Background

As earlier stated, the Liaison Committee on Medical Education (LCME) accreditation process is designed to certify that a medical program meets prescribed standards. It is recognized by both the LCME and the USUHS Board of Regents that predoctoral graduate programs in the basic medical sciences leading to the Doctor of Philosophy Degree or to appropriate degrees at the Master's level are essential components of a School of Medicine dedicated to excellence in medical education. Accordingly, graduate programs are offered in the following disciplines: Anatomy and Cell Biology; Biochemistry; Clinical Psychology (military only); Medical Psychology; Microbiology and Immunology; Molecular and Cell Biology; Neuroscience; Pathology (Comparative Pathology and Molecular Pathobiology); Pharmacology; Physiology; Medical Zoology; and, Public Health. Master's Degrees are offered in Public Health, Tropical Medicine and Hygiene; and, Military Medical History (military only).

Benefit to the MHSS

Graduate programs in the basic medical sciences benefit the USUHS and the MHSS as follows: 1) the graduate programs provide training opportunities for qualified active duty personnel of the Uniformed Services who receive authorization to participate in the USUHS graduate training programs under the sponsorship of their parent service; 2) graduate fellows have the opportunity to become aware of the outstanding investigative programs that are ongoing in the Department of Defense laboratories in the Washington D.C. area; it is anticipated that the research institutes within the Department of Defense will be able to recruit well qualified graduates on the basis of the mutual knowledge and respect developed during the graduate fellows' interaction at USUHS; 3) the academic environment of the School of Medicine is maintained at a high level exposing the uniformed physicians-in-training to the disciplined methods of critical scientific inquiry that are the rational basis of problem solving in medical science; and, 4) graduate students are required to participate as teaching assistants and to assist in the performance of instructional and investigative efforts that are essential to the mission the School of Medicine and significant to the MHSS.

The Development of Independent Scholarship

The goal of graduate study in the basic medical sciences at USUHS is to develop independent scholarship, originality, and competence in research, in teaching, and in professional service to the Nation. **The graduate education programs are designed for outstanding students with a strong commitment to permanent careers in the basic medical sciences and potentially, in the federal government**. Within each Ph.D. program, an individualized course of study is designed for each graduate student to meet his or her specific needs (over 200 individual courses have been established by the participating faculty of USUHS). The graduate programs are open to qualified civilian and uniformed personnel. Students accepted for postgraduate work are enrolled on a full-time

basis. They assist in the performance of the instructional and investigative efforts that are carried out at the University. Active duty military and uniformed services personnel must obtain the approval and sponsorship of their parent Service; they also incur an obligation for additional service, in accordance with the regulations of the parent Service which govern sponsored graduate education. **Most of these Officers will complete careers in their parent Services and use their graduate education and training in assignments** to **fulfill specific assignments for their Surgeons General and the MHSS.**

Research Facilities

The graduate education programs are conducted in facilities on the campus of USUHS. Well-equipped, modem laboratories are available to support the wide variety of research projects directed by the faculty in the basic medical sciences. Special resources include high resolution transmission and scanning electron microscopes, video-based computer graphics and confocal microscopy, a central resource facility providing custom synthesis of oligonucleotides and peptides, biohazard containment laboratories, a centralized animal resources facility, a medical library, computer support to include orientation to web sites and the Internet, and a learning resources center.

Selection of Students

A formal application is required of all persons seeking admission to graduate study at USUHS. Applications and all supporting documentation must be received no later than March 1 (the deadline for Clinical Psychology and Physiology is January 15) for programs beginning in the following August. Applicants must have completed a baccalaureatedegree program from an accredited academic institution before matriculation at USUHS. All graduate students are obligated to participate on a full-time basis and to assist in the teaching and research programs that are integral components of the graduate education program in which they are enrolled.

Responsiveness to the Needs of the Services

A specific example of the USUHS Graduate Education Program's direct response to the needs of the Surgeons General is the creation of a new program for the Master's in Military Medical History. This program is an outgrowth of the Fellowship in Military Medical History established at USUHS in 1983 to train instructors of history for the United States Army Academy of the Health Sciences. A request was received from the Medical Service Corps of the Army to establish a degree granting program so that officers could continue to be used for lessons learned and history education assignments as teachers at the Army Academy. The program of study is currently limited to officers in the Medical Service Corps of the Army; the first degree was granted during the 1997 Graduation at USUHS.

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The Graduate Medical Education Program of the School of Medicine

"Although physician workforce considerations and reductions...provide an impetus to resizing physician training programs, there are important questions institutions should ask in making decisions about the size and mix of GME programs ... What are you trying to achieve with your GME programs? Who is best to teach this and where is the best place to learn?"

"Examining the Future Size and Mix of Graduate Medical Education Programs," Association of American Medical Colleges (AAMC) Reporter, November 1997.

Background

The School of Medicine Office of Graduate Medical Education (GME) was established in 1986 in order to provide consultation on GME programs (internship, residency, and fellowship training for physicians) for program directors and the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA). Since 1986, USUHS GME has expanded to provide DoD-wide consultation and oversight for eleven USUHS-SOM sponsored or cosponsored GME programs. The USUHS-SOM Office of GME is also actively involved in the National Capital Military Medical Education Consortium which generates additional GME-related taskings from OASD/MA.

The following areas of responsibilities have been assigned by OASD/MA to the USUHS GME program: 1) sponsor or co-sponsor selected GME programs; 2) continue to be the academic affiliate for many GME programs especially in the development of qualifieduniformed GME physician faculty for the Services; 3) expand consultative services to ensure that accreditation is not jeopardized when DoD GME programs are integrated; 4) continue to participate in the OASD/HA implementation of its overall plan to select qualified program directors, to provide consultative support in the ongoing selection and evaluation of GME program faculty, and to support the development of an intra-DoD resident matching system; 5) coordinate with the implementation of a plan to collect and evaluate data and information on DoD GME programs in order to ensure academic and scientific excellence; 6) continue significant and critical support to military GME programs in the National Capital Region (NCR) through faculty supervision of trainees, support for the Residency Review Committee (RRC), mandated research, curriculum enhancement, faculty development, and direct patient care; and, 7) advise on militarily unique GME curricula (see part I of this report, the section on the Center for Informatics in Medicine, Military Graduate Education Web Site).

Administrative Office for the National Capital Military Medical Education Consortium

In September, 1997, USUHS was selected as the Administrative Office for the National Capital Military Medical Education Consortium.

Background. The National Capital Military Medical Education Consortium was established by the Commanding Officers of the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Air Force Medical Center, and the Dean, USUHS School of Medicine on January 25, 1995. Five programs were initially identified for integration: Pediatrics, Pathology, Otolaryngology/Head and Neck Surgery, Obstetrics and Gynecology, and Psychiatry. The process of the selection of program directors for the integrated residencies and arrangements for site surveys began immediately; and, by the end of 1995, four programs had been site surveyed and one program, Pathology, had been approved without a site survey. During 1996, the pace of integration slowed somewhat, but still progressed toward the integration of all duplicative programs with the possible exception of several specialties which had identified specific impediments to integration. Non-duplicative Fellowship Programs joined the Consortium as their parent programs were integrated. On June 20, 1997, the first joint graduation exercise for the National Capital Region was held at the Walter Reed Army Medical Center with more than 350 graduates participating. By July of 1997, there were 15 programs under Consortium sponsorship as well as seven integrated programs under the sponsorship of one of the TriServices. An institutional site survey by the Accreditation Council

for Graduate Medical Education was completedin July, 1997. Currently, 19 programs are either integrated, or under Consortium sponsorship, or both (to include one dental residency); three additional programs are awaiting approval. There have been two lessons learned during the process: 1) program integration is facilitated by, and a natural consequence of, the realignment of health care services; and, 2) the TriServices "do" the same things in medical education, but in slightly different ways.

Combat Trauma Surgery - USUHS Has Been Tasked to Develop Military Specific Trauma Courses

"The Uniformed Services University of the Health Sciences is tasked to develop military specific trauma courses to meet operational training goals. This military specific training is intended to bridge the gap between the experiencegained in trauma centers and the expected military requirements. The USUHS will coordinate development of this military specific training with the Services."

Health Affairs Policy Statement, "Combat Trauma Surgery," dated May 13, 1997.

Background. The Combat Trauma Surgery Committee (CTSC) Report submitted in 1997 was approved by the Surgeons General. Within the report, two requirements were indicated 1) the Navy identified the need to designate a mechanism for record keeping; and, 2) the Office of the Assistant Secretary of Defense for Reserve Affairs was concerned with the lack of inclusion of reference to the Reserve Components. Based on this information, the Acting Assistant Secretary of Defense for Health Affairs determined that a mechanism for accurate record keeping was an absolute necessity and would be incorporated in all future actions. It was also confirmed that the Reserve Components are an integral part of the MHSS and a critical asset in its wartime capability.

Delegation of **Responsibilities.** The Services were directed to develop and submit a phased implementation plan for trauma surgical skill training of Active Component personnel, initially focused on surgeons, based on the recommendations of the CTSC Report, during the final quarter of Fiscal Year 1997. USUHS was tasked to develop military specific trauma courses to meet operational training goals. This military specific training is intended to bridge the gap between the experience gained in trauma centers and the expected military requirements. USUHS was directed to coordinate the development of this military specific training with the Services. The Service's implementation plan for trauma surgical skill training and USUHS' development of military specific trauma courses were to be reviewed by the Defense Medical Readiness Training Education Committee (DMRTEC) in its capacity as the senior oversight body for coordination, the monitoring of progress, and the provision of guidance. The DMRTEC was also tasked with the development of a mechanism for accurate record keeping and the development of a Reserve Component program that incorporates the Committee's concepts and standards. **The USUHS Office of Graduate Medical Education was designated by the Dean, School of Medicine, as the primary office of responsibility for responding to the HA Policy Memorandum.**

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The Graduate School of Nursing

Background

"Congressman Hebert ... Anthony R. Curreri, M.D., the First President of USUHS...Mr. David Packard, the First Chairman of the USUHS Board of Regents and the Second President of USUHS ... and, Mr. Melvin Laird, the Secretary of Defense during the establishment of USUHS...were visionaries who wrote into Public Law 92-426 that USUHS must meet the requirements of medical readiness and must also one day expand to meet the future needs of the Uniformed Services. Those early founders recognized 25 years ago, that USUHS would someday be an excellent resource to prepare advanced practice nurses as those needs were identified by the Federal Nursing Chiefs. Initially, in 1974, I was first approached by Dr. Curreri to address the need for a school of nursing. Then, in 1989, Jay P. Sanford, M.D., the first Dean of the School of Medicine and the Third President of USUHS, contacted me to chair a task force which considered the needs for a school of nursing. We were unable to achieve those early visions until Fiscal Year 1993, when Senator Daniel K. Inouye of Hawaii, through an Act of Congress, called for a demonstration program for the preparation of family nurse practitioners for the Uniformed Services. The Graduate School of Nursing was given official approval and recognized as a 'Graduate School of Nursing' by the Office of Health Affairs in the Department of Defense on February 26,1996."

Remarks made at the Celebration of the 25th Anniversary of the Establishment of USUHS on September 22, 1997, by Faye G. Abdellah, Ed.D., Sc.D., RN, FAAN, Dean and Professor, Graduate School of Nursing.

The mission of the Graduate School of Nursing (GSN) is to prepare advanced practice nurses (APNs) at the graduate level to deliver primary and chronic care, including anesthesia services, to active duty members of the Uniformed Services, their families, and all other eligible beneficiaries. Students are provided military unique education in the TriService environment of USUHS which also includes the United States Public Health Service (USPHS). Graduates are prepared to deliver care in a wide variety of settings and communities, both nationally and internationally. GSN graduates are equipped to contribute to the Uniformed Services' peacetime health care delivery systems and to provide military and public health support during combat operations, civil disasters, and humanitarian missions. They may serve in hospitals and air evacuation units in the combat zone of a theater of operations under austere and harsh conditions, at sea on ships of war, or in isolated areas of the United States and other countries where other health care providers may be nonexistent. The major emphasis is on the nursing perspective of health promotion and disease prevention within the context of primary care ... as determined by the Federal Nursing Chiefs (the term, "Federal Nursing Chiefs," includes the Army, Navy, Air Force, and the USPHS; it also includes the Department of Veterans Affairs and the American Red Cross, a voluntary organization).

The GSN's two programs, Family Nurse Practitioner (FNP) and Certified Registered Nurse Anesthesia (CRNA), are designed to alleviate shortages of health care providers in the Uniformed Services as identified by the Federal Nursing Chiefs. Graduates receive the Master of Science in Nursing (MSN) Degree and qualify for national certification in their specialties. **A total of 38 uniformed advanced practice nurses have received MSN Degrees from the USUHS GSN and remain on active duty in their respective Services throughout the Uniformed Services.**

Accreditation

"The Council on Accreditation of Nurse Anesthesia Educational Programs (COA) is pleased to inform the Uniformed Services University of the Health Sciences Graduate School of Nursing Nurse Anesthesia Program in Rockville, Maryland, that continued accreditation has been granted .... effective September 27, 1997 ... following receipt of documentation of a short term resolution for the space problem while awaiting completion of the new building ... the program will be scheduled for its next consideration of continued accreditation in September 2003."

Notification dated October 22, 1997, from Betty J. Horton, CRNA, MA, MSN, Director of Accreditation, Council on Accreditation of Nurse Anesthesia Educational Programs.

At its December 1996 meeting, the Board of Review for Baccalaureate and Higher Degree Programs evaluated, for the National League for Nursing (NLN) accreditation, the Master's Degree Program offered by the Uniformed Services University of the Health Sciences, Graduate School of Nursing. Deliberations of the Board centered on an intensive review of 1) the GSN's self-study report submitted by the faculty; 2) the school catalog; 3) the program evaluator's report and recommendations; and, 4) the extent to which the criteria specified in Criteria for the Evaluation of Baccalaureate and Higher Degree Programs in Nursing, 1991 had been achieved and implemented. **The NLN Board of Review voted to grant accreditation to the Masters' Degree Program in Nursing and scheduled its next visit for reaccreditation for the Fall of 2001.**

In April 1994, the Certified Registered Nurse Anesthesia (CRNA) Program was granted initial accreditation by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA), permitting the admission of students to the program. Eight students, admitted in June 1994, completed 27 months of full time study and graduated in the Fall of 1996. Eleven students were admitted into the program in June of 1995, and thirteen were admitted in June of 1996. Twenty-five students were admitted to the Nurse Anesthesia Program in June of 1997. **Following an intensive review and site visit by the COA, as referenced above, the GSN Nurse Anesthesia Program received full accreditation through September of 2003.** The COA site visitors recognized the following strengths of the GSN Nurse Anesthesia Program: 1) an "extremely strong faculty; perhaps the only nursing school in the country with five full time Ph.D. faculty;" 2) a large variety of case experiences at a variety of excellent clinical sites; 3) wide experience with regional blocks; 4) the availability of faculty in both the GSN and the SOM; and, 5) the excellent caliber of the GSN students.

Both the National League for Nursing and the site visitors for the Council on Accreditation of Nurse Anesthesia Educational Programs documented concern over the space requirements of the GSN. In light of the GSN space requirements and of the expanding role of USUHS as an academic health center for military medicine, the Office of Health Affairs sent a review team to the University in March of 1997 to determine the advisability of constructing a new building on the USUHS campus for 1) the GSN; 2) the expanding USUHS Graduate Medical Education Program responsibilities for the National Capital Region; 3) the TriServices' increasing requirements for USUHS CHE sponsored Continuing Education for Health Professionals; 4) and, the potential MHSS requirements for the USUHS consultative programs, centers of excellence, and distance learning capabilities. The April 1997 report of the Health Affairs site team determined that "the addition (of a fifth building) will terminate the requirements for leased facilities located in Rockville, Maryland. The (construction) project is proposed as an Fiscal Year 2001 project. A draft program for design will be produced as a result of the analysis."

An accreditation program for nursing programs has recently been implemented by the American Association of Colleges of Nursing (AACN). The GSN has prepared material for submission to meet the AACN requirements for preliminary accreditation (a special accreditation for programs that have received recent national accreditation from other organizations such as the NLN). Once the submission is accepted, a site visit by the AACN is not anticipated until the Year 2000 or later.

The Selection Process

A commitment to the Nation is paramount in an applicant's decision to attend the GSN. The GSN Admissions Committee makes the final determination regarding student admission to the Graduate School of Nursing with the concurrence of the Dean. The membership of the Admissions Committee is different from those at other schools of nursing. In addition to members of the GSN faculty, the Committee has representatives from each of the Uniformed Services and faculty from the School of Medicine. The composition of the Committee reflects two critical beliefs of the GSN: 1) the nature of health care, particularly within the Uniformed Services, requires an interdisciplinary approach; and, 2) the Services select candidates for promotion and school attendance on the basis of the "whole person" concept.

The applicant pool is unique; the Army, Navy, Air Force, and U.S. Public Health Service pre-select and approve candidates for application to the GSN according to Service specific criteria. Once applicants have been selected by their specific Service, they may then apply to the GSN. The Admissions Committee of the GSN reviews the applicants' records not only on the basis of academic merit which evidences that the applicants can succeed in a graduate program, but also on the basis of officership and commitment to their particular Uniformed Service. Academic aptitude is balanced against the evidence of future officership and continuing commitment to service in the Army, Navy, Air Force, or the U.S. Public Health Service since graduates must fulfill a dual role upon graduation. The candidates nominated by the Uniformed Services have had a grade point average of between 3.8 and 4.0 in their Baccalaureate Programs; they have also had an average of eight years of experience in the Uniformed Services. The Federal Nursing Chiefs have evidenced their tremendous support for the GSN by sending extraordinary students to USUHS.

Admissions for Academic Year 1997

There were 39 admissions for Academic Year 1997, twenty-five uniformed students arrived in June of 1997 to attend the Nurse Anesthesia Program (27-month-program, 72 academic credits in length with 2,000 hours of clinical experience); and, thirteen students arrived at USUHS during August of 1997 for admission to the Family Nurse Practitioner Program (a 21-month-program, 54 academic credits in length with 720 hours of clinical experience). The new classes include students from the Army, Navy, Air Force, and the U.S. Public Health Service. The first Army students were admitted to the Family Nurse Practitioner Program during Fiscal Year 1997.

GSN Response to the Special Needs of the Uniformed Services Through its Curricular Review Process

The USUHS Graduate School of Nursing is unique among the Nation's nursing programs because it must educate students to treat and care for both civilian and military personnel, in peace, war disaster, or other situations that are under austere conditions. The GSN curricula are driven by special requirements in meeting the missions of the Department of Defense and the USPHS. Common to the GSN academic courses is subject matter that is relevant to military health care providers; for example, there are operational readiness components to each course. Continuous consultation has taken place with the Federal Nursing Chiefs during the development and review of the GSN curricula in order to assure that the special needs of the Uniformed Services are being met by the GSN graduates. In concurrence with the Federal Nursing Chiefs' indications that the career advancement of their officers would be enhanced through the completion of a Master's thesis, the GSN examined the feasibility of the completion of a thesis within the time constraints of its programs. Based on the assessment of multiple program components, including an assessment of the graduating students' research projects and faculty expertise, a master's thesis, which would become an extension of the charter students' research projects, was made a requirement for all graduating students, beginning with the graduating Class of 1996 and continuing with the Class of 1997. Additionally, in response to the Federal Nursing Chiefs' recommendations for the inclusion of military procedures during evacuation and the care of wounded or sick individuals when large numbers of critically ill patients would be air transported back to the United States, GSN students participated in mock air lifts and medical treatment during their flight experiences in both 1996 and 1997. Another example occurred when the 1995 graduates of the GSN recommended the inclusion

of procedures for requirements such as suturing, basic laboratory testing, and triage. The GSN faculty elected to incorporate those procedures into the appropriate GSN courses during the 1996 and 1997 Academic Years.

In addition to the overall mission of the GSN as previously stated, the GSN curricula prepare advanced practice nurses who are educated to: 1) assume positions of uniformed leadership within areas of specialization in the Uniformed Services; 2) contribute to nursing scholarship as required by the Uniformed Services; 3) conduct and evaluate research on expanded nursing roles in clinical practice especially in areas identified by the Federal Nursing Chiefs; 4) conduct and evaluate research in the management of the healh/illness continuum in the Uniformed Services; 5) assume leadership roles within the Uniformed Services; and, 6) further the role of the advanced practice nursing profession within the Uniformed Services. These six criteria are constantly reviewed and discussed with the Federal Nursing Chiefs to assure both consistency and accuracy in the GSN's response to the needs of the Uniformed Services.

Advanced Nursing Education in a Joint Service Environment

The GSN faculty and staff believe that the placement of the GSN within the interdisciplinary boundaries of USUHS is a distinct strength. The TriService and USPHS environment of USUHS offers a unique blend of ,<interactive didactic and clinical experiences which support the preparation of competent advanced practice nurses for service to the Nation during international conflict and in peacetime when humanitarian services and disaster relief are required. Clinical practice sites include both military and civilian hospitals and primary care healthcare clinics located primarily in the Washington D.C. area.

Recognizing the unique environment at USUHS, in 1997, the Air Force assigned all of the Air Force students who are approved for training as nurse anesthetists to the USUHS Graduate School of Nursing.

To meet the MHSS readiness requirements, it is essential that its professional healthcare officers are familiar with the structure of a joint command. Under the leadership of the USUHS Brigade Commander, the uniformed students, faculty, and staff assigned and reporting to the Graduate School of Nursing must participate in all activities and events as they would in any other command of the Uniformed Services. Regular military formations are held; physical fitness exercises, standards, and testing are adhered to; performance evaluations are completed and rated, and uniformed personnel in the GSN are trained in the appropriate uniformed programs and customs. The students of the GSN participate in joint-service educational and field experiences throughout their Master's Degree programs and, as a result, become familiar with the regulations, procedures, and vocabularies of the TriService and USPHS healthcare programs.

Alumni of the Graduate School of Nursing

The Graduate School of Nursing (GSN) has a total of 38 alumni (including two USPHS graduates) who are all on active duty in the Uniformed Services. Eleven Army, Navy, and Air Force nurse anesthesia students completed their program of study on September 30, 1997. The GSN alumni took their national certification examination in October and will receive word on the results in December of 1997. The seven family nurse practitioners who completed their program in May of 1997, have taken their national certification examination and have received notification that all passed in the upper percentile. All 27 graduates who have taken the examination (8 nurse anesthetists and 19 family nurse practitioners) have passed the examination in the upper percentile.

Special Recognition. Four Air Force students received decorations in Fiscal Year 1997: Lieutenant Colonel Judy Ikirt and Lieutenant Colonel Quannetta Edwards earned Meritorious Service Medals; Captain Terence McManus and Captain Cherl Udensi received Air Force Achievement Medals.

Research Awards Presented to the Class of 1996. Two members of the Graduate School of Nursing's Class of 1996 earned recognition for their research. Captain Rita A. Phillips, U.S. Air Force, NC, won the American Association of Nurse Anesthetists' 1996 Student Writing Contest for the study she prepared with W. Patrick

Monaghan, CLS, SBB, Ph.D., a professor in the Graduate School of Nursing (GSN). The paper, "Incidence of Visible and Occult Blood on Laryngoscope Blades and Handles," published in the Association's June 1997 journal, discussed the extent of contamination on anesthesia equipment that was identified as being ready for patient use. Their study confirmed that more rigorous decontamination protocols must be instituted to ensure complete removal of blood prior to sterilization, since laryngoscope blades and handles have irregular surfaces with repositories for infectious material. Captain Philips who is assigned to the 10th Medical Group at the U.S. Air Force Academy in Colorado Springs, Colorado, earned a Master of Science in Nursing Degree in the GSN's Nurse Anesthesia Program.

Lieutenant Mark Martineau, NC, U.S. Public Health Service presented his thesis researchat the 32nd Annual Meeting of the Commissioned Officers Association of the U.S. Public Health Service in June of 1997. At the same time, Lieutenant Martineau also won the 1997 J.D. Lane Junior Investigator Award for his paper, "What is the Role of Certified RegisteredNurse Anesthetists in the Indian Health Service?" The award recognizes investigator work conducted no more than four years following the completion of clinical research training. Lieutenant Martineau is a staff nurse anesthetist at the Public Health Service's Tuba City Medical Center in Arizona.

Studies Conducted by the Class of 1997. Following are examples of studies conducted by the GSN Class of 1997 (a complete list of abstracts and key words appears on the USUHS/GSN Internet Web Site):

Major Penny Lynn Petersen, USAF, NC, Family Nurse Practitioner. Major Petersen conducted a descriptive study on "Adherence to Clinical Preventive Women's Health Guidelines by Selected Military Health Care Providers." The study determined which preventative women's health care screening tests were being employed by a randomly selected group of Air Force health care providers. Data analysis consisted of the use of descriptive statistics to report the screening tests used in health maintenance. Major Petersen concluded that the Clinician's Handbook of Preventative Services (CHPS) standards were met or exceeded for documentation regarding mammograms, pap smears, blood pressure, weight, and digital rectal examinations.

Major Katherine M. O'Rourke, USAF, NC, Family Nurse Practitioner. "What is the Organizational Culture Regarding the Use of Family Nurse Practitioners as Perceived by Selected Objective Medical Group Executives?" Major O'Rourke's study concentratedon whether or not FNPs can successfully integrate their advanced practicerole within the current Air Force health care culture. The study indicated that there must be an identification of a need for FNP services at the local Objective Medical Group (OMG) level. Almost 75% of the 224 OMG executives who filled out the surveys supported the addition of FNP services. The highest consensus among the OMG executives was found in their agreement that preventive care would be increased through the addition of FNPs to the provider staff.

Captain Elizabeth A. Larino, USAF, NC, Family Nurse Practitioner. "Determining the Level of Care Provided by a Family Nurse Practitioner During Deployment." The purpose of this research study was to identify and describe the levels of care that could be provided by a family nurse practitioner during a military deployment. Armed Forces medical surveillance outpatient data, commonly referred to as disease non-battle injuries (DNBI) collected during Operations Desert Shield and Desert Storm (ODS/DS) were used to design a questionnaire. The survey questions addressed each condition in the reported DNBI data. The questionnaire was tested for validity and reliability before it was mailed to 104 directors of FNP educational programs listed in the National Organization for Nurse Practitioner Faculties Directory. The findings showed that at least 90% of the respondents agreed that the FNP could assess, diagnose, and provide interventions for prevention and education for the conditions experienced during ODS/DS. 70% of the respondents agreed that uncomplicated primary care conditions could be treated by the FNP. The findings of the study described the levels of care provided by the FNP and supported a role during deployment for the FNP.

Lieutenant David C. Olsen, USN, NC, Registered Nurse Anesthetist. Lieutenant Olsen conducted an in-depth study entitled "Epidural Anesthesia: New Computer Technology Used to Enhance the Teaching of a Common Anesthetic Practice." The National Library of Medicine originally conceived the Visible Human Project in 1986; a complete male and female have been scanned and digitized; this data has been available since 1995 and

can now be reviewed and used by licensed individuals and institutions to generate three-dimensional computer models of specific regions of the body. This GSN project has resulted in the development of teaching photographs and three-dimensional images to enhance the learning of epidural and spinal anesthetic anatomy and procedures by the GSN students.

Faculty Research/Teaching Endeavors

"...research universities have three core functions: the creation of knowledge; teaching; and, the integration of knowledge in society."

Life Science, "Research Universities Must Change Image,"
Franklin Raines, Director, Office of Management and Budget,
December 17, 1997.

Besides their teaching responsibilities, the GSN faculty have completed and are currently engagedin research protocols that are geared toward the improvement of healthcare throughout the MHSS. The following are examples of current GSN research protocols and teaching endeavors:

Maura S. McAuliffe, Lieutenant Colonel, USAF, NC, CRNA, Ph.D. in collaborationwith Beverly Henry, RN, Ph.D., FAAN, Professor and Associate Dean at the University of Illinois at Chicago, College of Nursing, is in the third phase of a large international project to study the education and utilization of Nurse Anesthetists in 177 World Health Organization member countries. The World Health Organization has a mandate that all Member Governments should have as their primary goal to achieve in the 21 st Century, a level of health that would allow their citizens to enjoy an economically and socially productive life. The main strategy for "Health for All by the 21st Century" is the development of a health system infrastructure, starting with primary health care, for the delivery of countrywide services that reach the whole population. Primary care includes maternal and child services, and the identification and appropriate treatment of common acute diseases and injuries. The skills and resources required to provide these aspects of primary health care often involve relatively simple, yet life-saving or disability prevention procedures, such as those used in the management of acute labor and delivery complications of the mother and fetus, or the simple reduction of a displaced fracture of a leg or arm. These services, however, cannot be provided humanely without anesthesia. In many countries, anesthesia is provided by civilian and uniformed nurse anesthetists. The World Health Organization collaborated in this international study of nurse anesthesia to provide information with respect to the quantity and quality of anesthesia care delivered by nurses in all countries as designated by the World Health Organization. This study is providing information that can serve as a basis for the future planning of anesthesia manpower resources and education. The results of this study will be of use to the MHSS as the TriService health care providers and executives search for cost-effective approaches for the provision of care and the management of services for their beneficiaries.

Barbara Sylvia, Ph.D., Associate Professor, Graduate School of Nursing, Patricia McMullen, Ph.D., Associate Professor, GSN, and Lieutenant Colonel Joseph Schmeltz, U.S. Army have been funded to study "Prenatal Care for CONUS and OCONUS Military Women." Poor neonatal outcomes create significant economic and readiness burdens for the MHSS. Early and comprehensive prenatal healthcare has been supported in numerous studies as the most effective intervention in the prevention of infant mortality, low birth weight, and problematic development. In light of this, the purposes of this GSN study are to: 1) determine the needs, availability, accessibility, use, and satisfaction with prenatal care services received by active duty and beneficiary military women outside the United States (OCONUS) and within the United States (CONUS); 2) determine the birth outcomes of OCONUS and CONUS military women; and, 3) determine if military women's reported needs, availability, accessibility, use, and satisfaction with prenatal care services and birth outcomes are significantly different for OCONUS versus CONUS military women. This study will employ methodological triangulation using a comparative descriptive design to examine and describe differences in variables in two groups of military women. The sample will consist of active duty and beneficiary Army, Navy, and Air Force women who received prenatal care and gave birth while assigned to military sites in Europe and the United States during the period of data collection. For each

group, descriptive statistics will be used to summarize and analyze demographic data as well as the various aspects of prenatal care. Content analysis will be used to analyze qualitative data obtained through focused interviews. The results of this study will influence the delivery of prenatal care for military women at sites both within and outside the United States.

Innovative Teaching of Traditional Nurse Anesthesia Topics

Contemporary training of nurse anesthesia students requires innovative technologies while maintaining traditional, proven techniques. The Council on Accreditation for Nurse Anesthetists outlines a variety of requirements related to the nervous system including regional blocks which students must master for the successful administration of anesthesia. To meet these requirements, a unique program is being taught by a diversified clinical and basic science faculty drawn from the GSN, the School of Medicine, affiliated hospitals, and federal agencies. Three courses are taught in the summer and fall semesters and are coordinated by Donald D. Rigamonti, Ph.D., GSN Department of Nurse Anesthesia. They are Anatomy/Cell Biology and Neuroscience I and II. The summer semester provides an extensive use of a "state-of-the-art" anatomy teaching laboratory where regional anesthesia is demonstrated. **Both the laboratory and regional anesthesia teaching were cited as highlights by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA) site reviewers.** The classrooms and library have several software packages "on line" and these are used during the Anatomy/Cell Biology Course. Neuroscience I is also taught in the summer and provides a review of basic neurophysiological concepts and an examination of gross central and peripheral nervous system structures. Neuroscience II is taught in the fall semester; it provides an in-depth review of neurophysiological concepts related to peripheral nerves, spinal cord segments and the brain. These principles are demonstrated in laboratories utilizing human subjects and computer-assisted data acquisition. In addition, computer-aided instruction is routinely used to teach human anatomy, cell biology, and nervous system structure and function. Throughout their courses of instruction, individual students are assigned lecture topics; the students then select laboratory sessions and lead discussions with visiting faculty and study groups. During these classes, the lectures, student notes and clinical questions are recorded on computer disks; the GSN will make this information available on the Internet once resources are identified. These courses utilize the Visible Human Project, which is available through the National Library of Medicine; this resource offers the possibility of simulating anesthetic procedures in the virtual environment. Access to the Visible Human Project was facilitated by collaboration with Dr. Richard Robb, Director of Biomedical Imaging Resources at the Mayo Clinic; Mr. Michael Karas, Director of University Information Systems (USUHS); and, student effort provided by Lieutenant David Olsen. At present, the GSN is seeking resources to further expand this project.

Five GSN Initiatives Are Poised to Serve the Uniformed Services

During Fiscal Year 1997, the GSN developed five innovative programs which were discussed, reviewed, and approved by the Federal Nursing Chiefs for implementation:

The Department of Veterans Affairs and Department of Defense Distance Learning Project. The Department of Defense Graduate School of Nursing has entered into a collaborative program on distance education with the Department of Veterans Affairs to educate nurse practitioners using state-of-the-art distance learning capabilities. The initial education program will be at the post-masters' certificate level and graduates will be eligible to meet American Nurses Association (ANA) nurse practitioner certification requirements. Students and their clinical preceptors will come from the VA, the TriServices, and the U.S. Public Health Service. When feasible, the students will meet at a joint site for the didactic classes taught by the GSN faculty. Clinical practice will be conducted at VA, military, public health, or civilian sites under the guidance of preceptors (further detail reference this project is described in part I of this report, in the section entitled World Wide Web and Distance Learning Projects, the Adult Nurse Practitioner Post-Master's Program).

Distance Learning Certified Registered Nurse Anesthetist (CRNA) MSN Completion Program. The DoD Federal Nursing Chiefs are requesting that Advanced Practice Nurses (APNs) in the TriServices should complete a Master of Science Degree in their specialty. The degree is perceived to be important for credentialing

purposes across the TriServices. A distant learning Certified RegisteredNurse Anesthetist (CRNA) MSN Completion Program offered by the USUHS GSN would benefit DoD in the areas of cost avoidance and quality of care. Since APNs in the military are geographically distanced from the USUHS, a distance learning program would provide for the completion of a Master's Degree from their assigned bases, eliminating the need for a change of station or assignment. Class hours would accommodate students' existing work assignments. A GSN- provided degree through distance learning would eliminate the cost of tuition for the program. Approval for the pilot project was received during Fiscal Year 1997 by the GSN Curriculum Committee; the Chair of the Department of Nurse Anesthesia; the Dean, GSN; the President, USUHS; and the Nurse Corps Chiefs from the Army, Navy, Air Force and the U.S. Public Health Service. All courses required for the CRNA MSN Completion Program are currently being offered at the GSN; and, faculty for the instruction of those courses have been identified. (further detail regarding this project is provided in Part I of this report, in the section entitled, Center for Informatics in Medicine).

The Family Nurse Practitioner Post Master's Completion Program (FNPCP). The Army is in the process of phasing out its requirement for Pediatric Nurse Practitioners; however, the DoD Army Federal Nursing Chief would retain these nurses if they could be certified as family nurse practitioners. A distance learning, GSN-sponsored post-master's Family Nurse Practitioner program would retain Master's prepared Clinical Nurse Specialists and Subspecialty Nurse Practitioners for the TriServices in a cost-effective manner.

The Development of a Computerized Bibliographic Retrieval System (CBRS) for Nursing Research Relevant to the Uniformed Services. The development of a computerized Bibliographic Retrieval System would provide the following: 1) the organized dissemination of information about ongoing and completed studies that are relevant to the Uniformed Services and which focus on nursing research; 2) the provision of ready access to research information for the Federal Nursing Chiefs who could then utilize the CBRS to assist in identifying priority areas for research and funding; 3) the provision of abstracts and progress reports of TriService Nursing Research projects on the Internet; and, 4) the dissemination of final reports, summaries, abstracts of scientific meetings, journal information, and other current information for interested health professionals through the Internet. Dr. Virginia Saba, GSN faculty member and coordinator of a task force appointed by the Federal Nursing Chiefs, has developed, with technical assistance from the Cumulative Index to Nursing and Allied Health Literature (CINAHL), an original template for the recording of research information.

Women's Health. The Graduate School of Nursing is charged with the responsibility of preparing advanced practice nurses who will provide care for both the men and women in the MHSS. Congress has also charged the Department of Veterans Affairs with the obligation to provide health care services to female veterans. The Public Health Service provides health services to the Federal Bureau of Prisons; current data from the Bureau of Prisons documents increasing numbers of female inmates. Both the Department of Defense, with over 197,000 women, and the Public Health Service are experiencing increasing numbers of women in their patient bases. It is consistent with the mission of the GSN that Advanced Practice Nurses should be prepared to meet this growing requirement. To implement this initiative, the Federal Nursing Chiefs approved an expansion in 1998 of the Family Nurse Practitioner Program from 2 **1** to 24 months. This will allow the inclusion of components in Women's Health and will prepare the USUHS Graduate School of Nursing FNP students for the provision of healthcare as required by the Uniformed Services.

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The Office of Continuing Education for Health Professionals

"I wish to thank you and the faculty of the 1997 Western Pacific Education Conference for your outstanding and scholarly continuing education presentations. The Conference was a complete success. The success was measured, in part, by having awarded over 1,100 continuing education units to 93 attendees. Furthermore, your excellent education program played an integral part in saving our command approximately $250,000 in TAD funds."

A letter to USUHS from J.J. Ragland, Captain, Medical Corps, United States Navy, Commanding Officer, U.S. Naval Hospital, Yokosuka, Japan, dated February 28, 1997.

Under Title 10, U.S. Code (Section 2113), USUHS is mandated by Congress to "establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services."

Unique Accreditation

The USUHS Office of Continuing Education for Health Professionals (CHE) provides nationally recognized continuing education credit for physicians, nurses, psychologists and healthcare executives through its accreditation by the Accreditation Council for Continuing Medical Education, the American Nurses Credentialing Center's Commission on Accreditation, the American Psychological Association, and the American College of Healthcare Executives, respectively. This provision from one office is believed to be unique within the MHSS; CHE is uniquely positioned to perform a significant role in facilitating the continued professional growth of health care professionals in the Military Health Service System. The principal responsibilities of the office are the identification of educational needs, planning, implementation, and the evaluation of continuing education and resuscitative medicine programs for members of the health professions. CHE is also responsible for the acquisition and maintenance of the University's continuing education accreditation and of trauma and resuscitative medicine training program affiliations. The USUHS Office of CHE is unique in the military medical system in that it is able to provide continuing education under the academic umbrella of USUHS. University faculty serve as CHE faculty and advisors. Whenever the USUHS CHE faculty are unable to provide direct support, they are able to call upon external experts known within the academic community in order to provide the required expertise.

CHE Support for Graduate Medical Education Programs

In conjunction with the National Capital Region Graduate Medical Education Consortium which has recently been placed at USUHS for administrative responsibilities, CHE's involvement has greatly increased in providing on-going continuing medical education (CME) programs such as Psychiatry Grand Rounds, the Washington Area Cardiology Conference, Preventive Medicine Grand Rounds, Family Medicine Grand Rounds, Pediatric Grand Rounds, and Digestive Diseases Grand Rounds. CHE also sponsors continuing education for psychologists within the region for Psychology Grand Rounds. The USUHS Faculty Development Program established in 1997, and discussed at the conclusion of the School of Medicine section in this document, provides continuing education credit for physicians and nurses as appropriate.

CHE Support for TRICARE/Health Affairs Initiatives

The USUHS Office of CHE has recently supported the Office of the Secretary of Defense for Health Affairs' (OASD/HA) increased demand for continuing education activities. Four OASD/HA-initiated conferences were conducted by CHE during 1997: two TRICARE Lead Agent Conferences were held in January and July of 1997; and, two conferences were supported for TRICARE Regions 1 and 9. Other initiatives supported by USUHS

were the Health Information and Management Systems Society Conference, the Medical Executive Training Course, the Military Training Network Conference, and, the 12th MHSS Strategic Planning Conference. The Office of CHE also supported the Medical Executive Training Courses discussed at the conclusion of the first section of this document. Reference this course, in 1997, physicians earned up to 34.5 hours of Category 1 CME; nurses, 41.2 contact hours; and those whose credentials are with the American College of Healthcare Executives earned 34.5 hours of Category 2 (non-ACHE) continuing education credit. CME and contact hours for nurses have also been provided for contracted work by the FMAS Corporation (Quality Management Reviews for Birth Product Line, Pediatric Asthma, and Cardiovascular Diseases) offered through the Office of Health Affairs.

CHE Response to the Surgeons General

The Surgeons General of the Army, Navy and Air Force, in their capacity as the Breast Cancer Working Group determined the need to update nurses and physicians on activities and programs sponsored under the congressionally directed Breast Cancer Prevention Education and Diagnosis Initiative. The initiative, with its resulting presentations, was to focus on areas of greatest impact in the TRICARE regions and to show the benefits of the activities and programs to their beneficiaries. The 1997 TRICARE Breast Cancer Presentations offered 9.5 hours of CME category 1 credit and 1 1.1 contact hours for nurses and were attended by 340 health care professionals (to include 121 physicians and 138 nurses). The CHE sponsored programs included topics in the field of breast health care such as nurse care managers, imaging, education, and management. The CHE also designates CME and nursing contact hours for the AFRRI Medical Effects of Ionizing Radiation Course (formerly the Medical Effects of Nuclear Medicine Course) discussed in the AFRRI section of this document. Participants attending the International Mine and Blast Injury Symposium discussed in the beginning section of this document earned Category 2 CME credit. The 57 physicians who attended the Military Research Symposium earned up to 10 hours of Category 1 CME credits, and seven nurses earned up to 11.6 contact hours of continuing education. There has been a dramatic increase in CHE-sponsored nursing continuing education activities; the Continuing Nursing Education Advisory Council, in reviewing activities at a mid-1997 meeting, reported a 126 percent increase in educational activities and a 252 percent increase in contact hours from the previous fiscal year.

Specialty and Review Courses for the MHSS

The Office of CHE sponsored continuing education for numerous specialty and review courses for the MHSS during 1997. Some of the courses designated for credit by CHE were: the Uroradiology Review Course; the WRAMC Ophthalmology Course; the Fiscal Year 1997 Navy Medical Logistics Conference; the Center for Excellence in Cardiovascular Medicine (Conferences on Congestive Heart Failure and Hyperlipidemia); International Spine Workshops (Cervical, Minimally Invasive Endoscopy, Peripheral Nerve, and Thoraco-Lumbar); the Capital Conference Family Practice Review; the U.S. Army Health Promotion Conference; the Occupational Health Training Course; and, Surgical Topics (Lasers in Surgery, Advanced Laparoscopy Updates, Basic Microvascular Surgery conducted at USUHS and at the Portsmouth Naval Hospital, Translaparoscopic Ultrasound, Translaposcopic Ultrasound and Cryotherapy, TriService Videoendoscopy for Perioperative Nurses, Pediatric Surgery Day, Urological Stone Disease Update, Video Assisted Thoracic Surgery, Advanced Pediatric Endoscopy, and, Ultrasound for the General Surgeon).

For the second year, CHE provided CME for the U.S. Air Force Flight Surgeon's Sustainment Course which is directed by the USUHS Department of Family Medicine. CHE was provided for the Society of Military Orthopaedic Surgeons Conference in November 1996, for the Association of University Anesthesiologists meeting in Washington, D.C., and for a USUHS Obstetrics and Gynecology Department symposium, Primary Care for Women, conducted in December 1996.

A continuing nursing education program was provided for the Department of Pediatrics course designed by Colonel Virginia Randall of USUHS. The Course, Coordinated Care for Children with Special Healthcare Needs, was conducted at the Malcolm Grow U.S. Air Force Medical Center and was designed to help the transition of clinic nurses into roles as case managers for such children. CHE also provided contact hours for nurses who attended a

USUHS-hosted United States Public Health Service Nursing Research Day in March 1997. CME was also designated by CHE for Emergency Medical Technician-Tactical courses offered by the USUHS Department of Military and Emergency Medicine; six courses for providers and medical directors were so designated. Finally, CHE has sponsored CME for four articles published for emergency physicians in collaboration with the USUHS Department of Military and Emergency Medicine and the Federal Services Chapter of the American College of Emergency Physicians; the topics were: Diabetes Mellitus; Hypothermia; CO Poisoning, and Meningitis.

Association of Military Surgeons of the United States Annual Meeting

Since 1993, CHE has worked with the Association of Military Surgeons of the United States (AMSUS) to provide continuing education credit for their Annual Meeting. AMSUS was established in 1891 and incorporated by an Act of Congress in 1903 as the Society of the Federal Health Agencies. As such, it contributes to the improvement of all phases of the federal health services. The constituent services of AMSUS include the medical departments of the U.S. Army, U.S. Navy, U.S. Air Force, U.S. Public Health Service, and the Department of Veterans Affairs. The 103rd Annual Meeting, Federal Medicine: Synergy for Readiness, was held on November 10-13, 1996, in San Antonio, Texas. The AMSUS Core Program Committee, led by the Surgeon General of the Air Force, identified three unifying threads to be woven throughout the meeting: a unified force, an emphasis on readiness, and the production of quality Continuing Education. The agenda emphasized federal medicine and took full advantage of the unique forum offered by the meeting and attendees.

The USUHS Office of Continuing Education for Health Professionals provided 241 sessions for continuing education credit. Of the 615 physicians who attended the meeting, 389 evaluated the program; earning up to 40 hours of Category I credit toward the American Medical Association Physicians' Recognition Award. Of the 1,534 nurses attending, 1,224 evaluated the program, earning up to 42 contact hours; and 57 members of the American College of Healthcare Executives (ACHE) earned up to 8.5 hours of pre-approved Category II (non-ACHE) continuing education credit toward advancement, recertification, or reappointment in the ACHE. Additionally, 472 non-nurse, non-physician others were given a certificate of attendance for use in seeking credit from their professional societies. Of the 3,396 participants, 472 were awarded Certificates of Attendance. **Since the 1991 AMSUS meeting, the number of sessions where USUHS has provided continuing education credit has increased from 47 to 241.** Comments from the participants indicated a high level of satisfaction with the meeting's emphasis on unified force and readiness topics, the quality and quantity of the continuing education credit provided at the annual meeting, updates on humanitarian missions, and reinforcement of the concept that technology and technology management are crucial in the planning and delivering of military health care. The participants expressed a high degree of satisfaction with the quality of the faculty, the diversity of the topics covered, and the joint military continuing education process.

USUHS CHE Generated Cost-Avoidance of $5.5 Million in 1996

In carrying out its principal responsibilities during Fiscal Year 1996, the most recent year for which figures are available, CHE sponsored continuing medical education for 110 programs with an attendance of 3,797 physicians and continuing nursing education for 52 activities with an attendance of 3,187 nurses. Fifty-seven psychologists earned continuing education credit at five programs; one hundred and six members of the American College of Healthcare Executives earned continuing education credit at six programs. **Because the USUHS Office of CHE brings medical training to the medical health care professionals, cost avoidance of $5,517,022 was generated for the MHSS by eliminating extensive travel expenses and time away from the hospitals and clinics** (the total cost avoidance was calculated by subtracting all of the operating costs for the USUHS Office of CHE, to include civilian and military manpower, from the total of cost avoidance generated by the elimination of travel, per diem, and significant commercial registration expenses ($5,994,522 - $477,500 = $5,5 17,022).

One example of CHE-generated cost avoidance is the USUHS School of Medicine Department of Surgery's Video Endoscopy Program. Ten courses were offered in Fiscal Year 1996; one hundred and twenty-two military and federal surgeons were trained in the USUHS video endoscopy courses at a cost avoidance for the MHSS, for

tuition alone, of $366,000. Also in 1996, the U.S. Navy (Western Pacific and Mediterranean Programs) and the U.S. Army (Landstuhl Regional Medical Center and the 18th Medical Command) realized significant cost avoidance by contracting with the USUHS Office of CHE for the coordination of programs on targeted issues for specific audiences near facilities in Germany; Korea; Yokosuka and Okinawa, Japan; Guam; Rota, Spain; Naples, Italy; and, Sigonella, Sicily. In Fiscal Year 1996, CHE generated over $2.8 million of cost avoidance for the MHSS through the management of these programs.

Multiple Paybacks

The USUHS CHE sponsorship of the continuing education conferences funded by the Services has had multiple paybacks. The most obvious is one of cost avoidance. **The most important is the provision of continuing education tailored to the unique requirements of military health care professionals, close to where they are stationed, and in a forum where the overseas military medical community can network.** The European conferences are also used to interact with military medical providers from NATO and Eastern Europe.

Staff Publications and Special Recognition

Charlotte Naschinski, Deputy Director of Continuing Education for Health Professionals, contributed to Nursing Diagnosis and Intervention: Planning for Patient Care, 3rd Edition, 1997, by Gertrude K. McFarland and Elizabeth A. McFarlane. She also contributed to Mosby's Clinical Nursing, 4th Edition, 1997, by Thompson, McFarland, Hirsch, and Tucker, and to Pocket Guide to Nursing Diagnosis, 7th Edition, 1997, by Kim, McFarland, and McLane. All were published by Mosby.

Commander (captain select) Laura Omer, NC, USN, Director of CHE, contributed to Pocket Guide to Nursing Diagnosis, 7th Edition, 1997, by Kim, McFarland, and McLane, published by Mosby. Commander Omer was also recognized as 1997's Outstanding Alumna by Toccoa Falls College, Georgia.

Future Goals

The Office of CHE is applying to the American Psychological Association (APA) for continued approval to provide continuing education for psychologists in 1998. This is in response to a request for CHE to provide APA credit for psychologists assigned to the U.S. Army 121st Hospital, Seoul, Korea, and a local request to continue National Capital Consortium Psychology Grand Rounds credit.

CHE has also been collaborating with the Food and Drug Administration (FDA) to provide CME and contact hours for nurses for a publication related to medical devices. In 1998, this publication will be distributed to an estimated 650,000 health care providers throughout the United States. CHE and FDA nurses on the project are exploring an opportunity to evaluate the effect of the publication on mandatory and voluntary reporting of incidences related to medical devices.

Finally, CHE will request permission of the American College of Healthcare Executives to provide Category II (non-ACHE) continuing education credit for a distance learning program being planned by the Division of Health Services Administration, USUHS Department of Preventive Medicine and Biometrics. The ACHE has not heretofore permitted continuing education for any educational format except for face-to-face events. The video conference "Epidemiology and Clinical Practice" is planned to be a one-hour monthly on-going program, such as Grand Rounds. (CHE is already authorized to provide CME and contact hours for nurses for programs for distance learning projects.)

The Military Training Network

The mission of the Military Training Network (MTN), located with the Office of CHE, is to develop and implement policy guidance and ensure compliance with curriculum and administrative standards for resuscitative and trauma medicine training programs for the Uniformed Services and the Department of Defense affiliates. The MTN

staff provides specific service expertise, central record keeping, world-wide coordination of programs, and ensures that national resuscitative and trauma medicine organizations are aware of the unique requirements of military medicine.

The MTN Generated $13.7 Million of Cost-Avoidance for the MHSS. DoD sites affiliated with the MTN are approved to conduct self-sustained resuscitative and trauma medicine training. This continues to prove cost-effective to the MHSS because it eliminates the need to pay premium training costs for civilian resuscitative and trauma medicine programs. For example, during Fiscal Year 1996, 242,663 defense personnel were trained through the USUHS MTN. The average commercial cost for providing that training would have conservatively totalled at least $2 1,220,322. The cost avoidance generated for the MHSS was calculated by subtracting all of the operating costs for the MTN, to include the civilian and military staff provided by the TriServices from the average commercial cost of the training ($21,220,322 - $7,449,991 = $13,770,331).

Second Annual World-Wide MTN Conference. The Military Training Network held its second annual world-wide conference at the University in March of 1997, drawing more than 160 attendees from as far away as Europe and the Far East. The conference included sessions in military medical readiness; joint training endeavors; and, presentations by the American College of Surgeons, the American Heart Association, the National Burn Institute, the National Registry of Emergency Medical Technicians, and the MTN International Faculty Member for the Trauma Nurse Core Course. The USUHS president presented Affiliate Program of the Year Awards to the best resuscitative and trauma medicine programs conducting MTN-sponsored courses. Those MTN-sponsored programs receiving awards were: **1) Basic Life Support: Irwin Army Community Hospital, Fort Riley, Kansas**; this program was recognized for its innovative approach and continued excellence, despite significant transition of personnel; **2) Advanced Cardiac Life Support: 89th Medical Group, Andrews Air Force Base, Maryland**; this organization was selected for the joint training provided to the Air Force, Navy, Coast Guard, and the United States Public Health Service; and, for its continuous focus on providing quality education and training to all health care professionals; **3) Pediatric Advanced Life Support: Tripler Army Medical Center, Honolulu**; this program was recognized for its innovative approach to education; and, for the establishment of a single administrative structure which resulted in tremendous program growth and a highly regarded program throughout the Pacific; this consolidation of services saved DoD over $250,000; **4) Advanced Trauma Life Support: Naval Medical Center, Portsmouth, Virginia**; this program was selected for saving more than $70,000 in training costs and for consistently submitting complete and accurate course reports, which resulted in improved customer service and efficiency in the receipt of ATLS cards by health care professionals world-wide; **5) Emergency Medical Technician Program of the Year: 10th Mountain Division, Fort Drum, New York**; in spite of numerous deployments to support contingency operations and operations other than war, this unit maintained a 94 percent pass rate and a commitment to professional excellence; and, **6) Trauma Nurse Core Course: Joint Medical Readiness Training Center, San Antonio, Texas**; this program was recognized for training 936 nurses and saving more than $33,000; the center expanded its curriculum to include modules specific to providing care in a military environment, resulting in improved medical readiness capability.

World-Wide Reciprocity for Healthcare Providers. Currently, the USUHS MTN is the only American Heart Association Affiliate with world-wide reciprocity for health care providers. Effective July, 1997, the USUHS MTN was the only American Heart Association Affiliate with a continued discount for course materials. The USUHS MTN provision of this training enhances **DoD's** ability to provide training in strategically critical areas throughout the world (e.g., Bosnia, Mt. Sinai, and Turkey), and on operational platforms (e.g., aboard aircraft carriers) .... remote sites where civilian training would not be available. **All of these capabilities are essential to the wartime medical readiness of the Uniformed Services.**

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III. USUHS HAS MET THE MISSIONS ESTABLISHED BY CONGRESS AND THE MEDICAL PROGRAMMING GUIDANCE FOR FISCAL YEARS 1994-1999 AS SET BY THE DEPARTMENT OF DEFENSE AND IS POISED FOR FURTHER SERVICE TO THE SURGEONS GENERAL AND THE MHSS.

USUHS Has Met or Exceeded the Missions Established by Congress

The Need for Continuity, Leadership, Dedication to Public Service and Academic Recognition in the Military Medical Service System (MHSS). The recognition of the importance of pre-war and wartime knowledge of medical requirements was one of the significant factors that motivated both the Congress and the Executive Office of the President to recommend and approve the establishment of USUHS and the Health Professions Scholarship Program (HPSP) as complementary sources of accession for military physicians. Public Law 92-426 established the HPSP to be a flexible source for the quantity of physicians required by the Armed Forces. USUHS was established to provide a cadre of military medical officers who would provide continuity and leadership to the MHSS; currently, USUHS graduates represent 17 percent of the total physician force; the congressional founders envisioned USUHS representation at 10 percent. As pointed out in part II of this reference document, The School of Medicine, sections entitled "USUHS Graduates Are Promoted Ahead of their Peers," "Documented Operational Readiness," and "Special Achievement or Recognition," USUHS graduates are holding leadership positions and meeting the special needs of their Commanding Officers throughout the MHSS.

The concept that the Uniformed Services require a medical force which assures continuity, leadership, dedication to public service and academic recognition has been validated by the Department of Defense, the Congress, and the Executive Office of the President during Congressional Hearings and by official memoranda. By not recognizing those requirements, the lessons learned from past wars are forgotten and must be relearned at the expense of the fighting forces. It is therefore essential to maintain enough physicians in the military services to ensure that the lessons learned in military medicine during both combat and peacetime will be safeguarded. As stated earlier in part II of this document, The School of Medicine, in the section entitled "The Selection Process", the overall retention rate for USUHS graduates is 92 percent; the retention rate for those who have completed their service obligation and could leave active duty is 85 percent. Congress had originally envisioned retention rates close to 70 percent. **The USUHS military medical personnel, faculty, active duty alumni, and programs serve as the institutional memory for military medicine.**

In order to meet its mandated mission, and to maintain its numerous programs, USUHS must retain its fully accredited status by ten professional organizations as earlier discussed in this document (Part II, The University, sections entitled "Accreditation" and "Survey on Streamlining Education in the Department of Defense"). It is directly due to its accredited status and its quality faculty that the University has been able to successfully respond to both the Department of Defense and the Congress whenever additional academicprograms or courses are required.

Expansion of the USUHS Mission

History of Program Expansion and Strategic Planning at USUHS. During 1991, the USUHS administration worked closely with the Assistant Secretaries of Defense for Program Analysis and Evaluation and Health Affairs on the issue of cost effectiveness and program expansion. The initial efforts were to outline expanded responsibilities for USUHS. DoD Directive 5105.45, which charters USUHS and includes its mission statement, was updated, accepted, and approved by the Secretary of Defense in April of 1991. Following the appointment of its President, James A. Zimble, M.D., USUHS coordinated and submitted a mid- and long-range plan to the Secretary of Defense in July of 1991. Under the leadership of the USUHS President, a USUHS Executive Steering Committee drafted new mission and vision statements and guiding principles from November of 1991 through January of 1992. Strategic goals consistent with those statements were also developed during the 1991-1992 timeframe to expand the role of USUHS and increase its cost-effectiveness; the expansion of responsibilities were in the areas of medical consultative services, research, curriculum development, and world-wide continuing medical education. During Fiscal

Years 1995 through 1997, the University was engaged in a vigorous strategic planning and Continuous Quality Improvement process. Updated (draft) mission, vision, guiding principles, strategic goals, strategies and metrics have been placed on the Internet for review by the faculty, staff and students, which allows active participation in the strategic planning process on the part of the entire USUHS community. The USUHS Board of Regents has also been actively involved in the development of the USUHS Strategic Plan from its participation in the initial strategic training sessions and throughout the entire ongoing process. The draft of the USUHS Strategic Plan encompasses and is consistent with the strategies and goals of the current Military Health Services System Strategic Plan as established by the Assistant Secretary of Defense for Health Affairs.

USUHS Participated in the Medical Programming Guidance for Fiscal Years 1994-1999 and Has Met the Nine Mandated Expansion Efforts Outlined by the Programming Guidance. USUHS, for the first time, was included in the DoD Planning and Program Guidance process during 1991-1 992. This allowed USUHS to participate in the Program Objective Memorandum (POM) for the resources necessary to meet the objectives and goals stated in the Medical Programming Guidance for Fiscal Years 1994-1999. The Programming Guidance provided nine areas of expansion for USUHS in the out-years. All of those guidances have been met by the University as reflected in this Document for Fiscal Year 1997:

- USUHS shall program to provide graduate education programs in the basic medical sciences **(Accomplished - Described in detail in Part II of this document, The Graduate Education Programs of USUHS);**

- USUHS shall program to provide continuing health education programs **(Accomplished - During Fiscal Years 1996 and 1997 a significant increase in resources were directed toward the Office of CHE by the President of USUHS);**

- USUHS shall program **to** develop and conduct a specialty track in environmental health policy **(Accomplished - Included in Part II of this document, The Graduate Education Programs of USUHS);**

- USUHS shall program for sufficient military end strengths to ensure the matriculation of approximately 156 military medical students annually **(Accomplished - Totals of Medical School graduates follow: 1994 - 155 graduates; 1995 - 157 graduates; 1996 - 158 graduates; and, 1997 - 164 graduates);**

- USUHS shall develop the concept of consolidated residency training along the STF concept in conjunction with the Services **(Accomplished - Described in detail in Part II of this document, The Graduate Medical Education Program of the USUHS SOM);**

- USUHS shall program to establish an affiliation, when appropriate, between USUHS and DoD GME programs **(Accomplished - In September of 1997, USUHS was notified that the SOM Office of Graduate Medical Education will serve as the Administrative Office for Graduate Medical Education in the National Capital Region);**

- USUHS shall program to provide assistance to all DoD GME programs **(Accomplished - Described in detail in Part II of this document, the Graduate Medical Education Program of the USUHS SOM);**

  USUHS shall program for a Ph.D. program in clinical psychology **(Accomplished - in May of 1996, Army Major John H. Trakowski became the first uniformed officer to complete the doctoral program in Clinical Psychology);**

- USUHS shall program to develop and implement a program for department-wide predoctoral and postdoctoral clinical psychology training **(Accomplished).**

USUHS Is Poised to Shift its Focus to Meet the Immediate and Future Requirements of the Surgeons General and the MHSS

USUHS Recommendations to the General Accounting Office Review Team in March of 1995. In March of 1995, USUHS completed an extensive review and response to the questions delegated by the Senate Armed Services Committee to the General Accounting Office (GAO) for its congressionally-assigned review of USUHS. Based upon that review; the various studies undertaken by the Department of Defense and the Office of the Inspector General (DoD/IG) following Operations Desert Shield and Desert Storm; and, the Department of Defense's emphasis reference the importance of military readiness, USUHS provided recommendations for the expansion of its mission. The test of time and the positive response of the University has resulted in either the completion of, or the foundation firmly set in place for, the following five recommendations:

1) The expansion of the USUHS training to Reserve Units **(See part II of this document, Graduate Medical Education Programs of the USUHS SOM, USUHS Has Been Tasked to Develop Military Specific Trauma Courses);**

2) The expansion of USUHS as the academic center for military medicine **(See part I of this document);**

3) The active participation of USUHS in Graduate Medical Education in the National Capital Region **(See part II of this document, Graduate Medical Education Programs of the USUHS SOM, Administrative Office for the National Capital Military Medical Education Consortium);**

4) The expansion of the USUHS Continuing Health Professions Education Programs **(See part II of this document, The Office of Continuing Education for Health Professionals);** and,

5) USUHS participation in a TriService Training Environment for military medical planning **(See part II of this document, sections on Graduate Education Programs of the SOM, Graduate Medical Education Program of the USUHS SOM, the Graduate School of Nursing, and the Office of Continuing Education for Health Professionals all of which directly participate or enhance the military medical planning process).**

Current USUHS Programs are Poised to Respond to the Surgeons General. The USUHS mission is consistent with the MHSS and the Joint Health Service Support Strategy for 2010. Part I of this document provides inclusive descriptions of USUHS programs, services, and consultative activities that are prepared to respond to the needs of the Surgeons General and the MHSS. USUHS was established based on the principles of continuous service to the Nation and the provision of leadership in the Military Medical Services System. As Fiscal Year 1998 issues forth its inevitable demands and challenges, the University remains committed to those ever-so-important visions that were signed into Public Law over 25 years ago. The University community is ready to move forward under the leadership of the Surgeons General.

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APPENDIX A

Selected Examples of Individual Achievements and Recognition - Billeted and Adjunct USUHS Faculty

Conference Presentations:

- Norman M. Rich, M.D., FACS, Professor and Chairman of the Department of Surgery, presented the Mitchiner Lecture at the Royal Medical Services College at Millbank in London in November 1996; in April of 1997, Dr. Rich participated in the Russian Military Medical Academy Exchange in St. Petersburg with Doctor Michael E. DeBakey.

- USUHS Vice President for Research, Ruth Ellen Bulger, Ph.D., presented "New Paradigms of Clinical Research" at the International Conference on Human Clinical Research held in Naples, Italy, September 15-17, 1997.

- Anita Singh, Ph.D., Research Assistant Professor, Department of Military and Emergency Medicine, presented a seminar on "Nutritional Needs for Endurance Exercise" to senior officers at the Headquarters Army Training Command in Shimla, India, in December 1996. Dr. Singh discussed the interactions between good nutrition and regular exercise, including information about carbohydrate and fluid requirements for endurance activities and the use of nutritional supplements. She also reviewed current diet and health guidelines within the context of the Indian diet.

- Captain E. Jane McCarthy, United States Public Health Service, Associate Professor and Chair, Nurse Anesthesia Department, Graduate School of Nursing, CRNA, Ph.D., FAAN, presented "Curriculum Analysis for a North American Free Trade Agreement (NAFTA) Nurse Anesthesia Program," at a conference for Nurse Anesthesia Educational Requirements and Mobility between NAFTA Countries during September of 1997, in Chicago, Illinois.

- Donald D. Rigamonti, Ph.D., Associate Professor, Nurse Anesthesia Department, Graduate School of Nursing, presented "Regional Anesthesia: Cyberspace is Here - Let's Use It!" at the American Association of Nurse Anesthetists 1997 Annual Meeting in San Francisco, California.

- Major James R. Halliburton, CRNA, MHS, AN, Assistant Professor, Nurse Anesthesia Department, Graduate School of Nursing, presented "Awareness During General Anesthesia" at the June 1997 Combined Kentucky Indian Associations of Nurse Anesthetist Meeting.

- Barbara Sylvia, Ph.D., Associate Professor and Chair, Department of Research, Graduate School of Nursing, presented "Prenatal Care" to the military nursing research group at the Landstuhl Regional Medical Center, Germany, during October of 1997.

- Lieutenant Colonel Maura S. McAuliffe, United States Air Force, NC, CRNA, Ph.D., presented "Nurse Anesthesia Worldwide: Practice, Education, and Legislation," at the International Council of Nurses 21st Quadrennial Congress in Vancouver, Canada. She also presented at the 5th World Congress for Nurse Anesthetists, in Vienna, Austria.

Publications: (the following are examples from over 424 USUHS papers published in peer- reviewed publications during Fiscal Year 1997 and other significant publications)

- Cinda J. Helke, Ph.D., Professor, Department of Pharmacology, and Director of the USUHS Neuroscience Research Program, co-authored an article accepted for publication in Brain Research; "Coexistence of Calcium-Binding Proteins in Vagal and Glossopharyngeal Sensory Neurons of the Rat."

- Commander Kevin Yeskey, United States Public Health Service, Director of the USUHS Center for Disaster Medicine and Humanitarian Assistance, Department of Military and Emergency Medicine, was listed as a 1997 contributor in the new Textbook of Emergency Medicine. Volume 2. Commander Yeskey authored the chapter entitled "Radiation Exposure." Dr. Yeskey is also an Associate Professor of Medicine and the Director of the Department of Medicine Clinical Sciences Division, and a graduate of the USUHS School of Medicine.

- Major Andrew J. Satin, United States Air Force, USUHS Department of Obstetrics and Gynecology, authored "Cardiopulmonary Arrest in Pregnancy" which was printed in the July/August 1997 issue, Volume 4, Number 4, of the journal, Primary Care Update for OB/GYNs, published by the American College of Obstetricians and Gynecologists. Major Satin was also the senior author for "Oxytocin Labor Stimulation of Twin Gestations: Effective and Efficient," which was published in the August 1997 issue of Obstetrics and Gynecology (Volume 90. No.2).

- James G. Smirniotopoulos, M.D., Professor of Radiology and Neurology and Chair Department of Radiology and Nuclear Medicine, co-authored the article, "Neuroimaging-Autopsy Correlations in AIDS" published in Neuroimaging Clinics of North America Magazine, (1997;7:615-637).

- Harry C. Holloway, M.D., Professor of Psychiatry; LTC Ann E. Norwood, MC, United States Army, Assistant Professor of Psychiatry; Carol S. Fullerton, Ph.D., Research Associate Professor of Psychiatry; Major Charles C. Engel, Jr., MC, United States Army, Assistant Professor of Psychiatry; and, Robert J. Ursano, Professor and Chair of Psychiatry have been notified that their article, "The Threat of Biological Weapons: Prophylaxis and Mitigation of Psychological and Social Consequences," will be published in the Journal of the American Medical Association, in January 1998.

- Robert M. Friedman, M.D., Professor and Chair, Department of Pathology; Annie Yeh, Senior Research Associate of Pathology; Pablo D. Gutman, Assistant Professor of Pathology; Sara Contente, Research Assistant Professor of Pathology; and, Kaylene J. Kenyon, Research Assistant Professor of Pathology, published "Reversion by Deletion of Transforming Oncogene Following Interferon & Retinoic Acid Treatment," during Fiscal Year 1997 in the Journal of Cytokine and Interferon Research.

- Jerome E. Singer, Ph.D., Professor and Chair, Department of Medical and Clinical Psychology, chaired the Committee on Techniques for the Enhancement of Human Performance. The Committee's resulting publication, Enhancing Organizational Performance, was published in 1997. Following a request from the Army Research Institute, the National Research Council charged Dr. Singer's committee to perform the following: 1) assess the implications of organizational change and redesign for performance; 2) evaluate new approaches to management designed to improve individual, team, and organizational performance; 3) review and evaluate approaches to organizational leadership, including techniques for leader development, training, and motivation; 4) develop a framework for evaluating approaches to intra- and interorganizational collaboration; and, 5) review and evaluate approaches to the management of conflicts within and between

organizations, with special attention to implications for new Army missions. The Committee met its charge; the Army will determine the applicability of the results to its organizational processes and problems.

- F. G. Abdellah, Ed.D., Sc.D., RN, FAAN, Dean and Professor, Graduate School of Nursing, authored an article for publication in Military Medicine, 162, 1-6 (1997), "Managing the Challenges of Role Diversification in an Interdisciplinary Environment."

- Lieutenant Colonel Dan L. Gehlbach, MC, USA, Assistant Professor of Obstetrics and Gynecology and Head of the Clinical Services Program for the Infertility Division at the National Naval Medical Center and the Walter Reed Army Medical Center, authored a major review article entitled "Contraceptive Needs, Complications, and New Directions for Research" which was published in the December, 1996, issue of Women's Health Issues, pages 355-358.

- Lieutenant Colonel Maura S. McAuliffe, United States Air Force, NC, CRNA, Ph.D., published "The Practice and Philosophy of Nurse Anesthetists" in Image: Journal of Nursing Scholarship, Vol 29 (3), 289-290, 1997.

- Karen Dawn Gray, Ph.D., Assistant Professor of Obstetrics and Gynecology, was the senior author of a basic science article entitled "Neoplastic Transformation of the Endocervix Is Associated with Down-Regulation of Lactoferrin Expression." Her co-authors, all in the Department of Obstetrics and Gynecology, included J. Farley, D. Loup, M. Nelson, A. Mitchell, C. Macri, and C. Harrison. The article was published in Molecular Carcinogenesis, 20:240-250, 1997.

- Major Gregg Meyer, MC, United States Air Force, Assistant Professor of Medicine and Director, Division of General Internal Medicine, co-authored an article in the December 18, 1997 issue of the New England Journal of Medicine: "House Calls to the Elderly--A Vanishing Practice Among Physicians."

- Captain Ildy M. Katona, M.D., MC, United States Navy, Professor of Pediatrics and Medicine and Chair, Department of Pediatrics, co-authored the article, "Immunoglobulin E enhances mast cell Fc,RI expression in vivo and in vitro," published in the Journal of Experimental Medicine, 185:663, 1997.

Awards:

- Christopher Broder, Ph.D., USUHS Assistant Professor, Department of Microbiology and Immunology, was selected as a co-recipient of the 1995-1996 Newcomb Cleveland Prize by the American Association for the Advancement of Science. The selection was determined by the journal's editors and is awarded for the most significant paper published in Science. Dr. Broder's paper described crucial information about how the human immunodeficiency virus (HIV) infects immune system cells. A bronze medal and $5,000 was awarded to the co-authors on February 15, 1997. Dr. Broder was also selected to proctor the comprehensive microbiology examination by the National Board of Medical Examiners.

- Terez Shea-Donohue, Ph.D., USUHS Professor, Department of Medicine, was selected for the 1997 Janssen Award (a $10,000 prize) for Basic or Clinical Research in Gastrointestinal Motility "in recognition of her contributions to the advancement of the understanding of gastrointestinal motility in health and disease."

- Val G. Hemming, M.D., Dean, School of Medicine, was honored at the 103rd meeting of the Association of Military Surgeons of the United States (AMSUS) which was held on November 10-13, 1997. Dr. Hemming was selected for his presentation of the "Sustaining Membership Lecture;" Dr. Hemming was also the recipient of the American Academy of Pediatrics Outstanding Service Award for 1996, presented on March 3, 1997. This award recognized the contributions of Dr. Hemming for his service in pediatrics for the uniformed services medical community.

- On May 14, 1997, Harvey B. Pollard, M.D., USUHS Professor and Chair of the Department of Anatomy, was selected by the Washington Academy of Sciences to receive the Award for Outstanding Contributions to the Biological Sciences. In addition to the Award, Dr. Pollard received an honorary membership as a Fellow of the Academy for one year. The purpose of the award program of the Academy is to recognize scientists who have done scientific work of high merit and distinction in the Washington metropolitan area.

- Colonel Leonard C. Sperling, MC, United States Army, Chair, Department of Dermatology, was selected by the Scientific Committee of the Association of Military Dermatologists to receive the first place award for the Medical article entitled: "Evaluation of Hairloss," February, 1997.

- Commander Thomas A. Grieger, MC, United States Navy, Department of Psychiatry, was awarded the 1997 American Psychiatric Association Nancy C. Roeske Award for outstanding contributions to medical student education.

- Major Jeffrey L. Jackson, MC, MPH, United States Army, was selected by the Society of General Internal Medicine as the 1997 Milton W. Hamolsky Junior Faculty Award winner for his presentation "Mental Disorders in Patients Presenting with Physical Complaints: Clinical Predictors and Outcomes." Major Jackson was recently appointed as Director, Fellowship Program for General Internal Medicine, Department of Medicine, USUHS.

- F. G. Abdellah, Ed.D., Sc.D., RN, FAAN, Dean and Professor, Graduate School of Nursing, received the USUHS Distinguished Service Medal for establishing the first military/uniformed service Graduate School of Nursing.

- Lieutenant Colonel Judd Moul, MC, United States Army, Associate Professor of Surgery and Director of the Center for Prostate Disease Research at USUHS, received the 1997 Gold Cystoscope Award from the American Urological Association. The award is presented to the urologist who contributes the most to his profession during the ten years following residency training. It recognizes the work LTC Moul has done in prostate and testicular cancer research at USUHS and the Walter Reed Army Medical Center since 1989.

Professional Recognition:

- Brian M. Cox, Ph.D., USUHS Professor and Chair of the Department of Pharmacology, was elected Secretary-Treasurer of the American Society of Pharmacology and Experimental Therapeutics; he will serve on the Executive Council from July 1999 to June 2000.

- Robert M. Friedman, M.D., Professor and Chair of the Department of Pathology, was selected as President of the International Society for Interferon & Cytokine Research. He presided over the Society's October 19-24, 1997 meeting in San Diego, California.

- Lee E. Smith, M.D., Clinical Professor of Surgery at USUHS, was electedPresident of the 1,800 member American Society of Colon and Rectal Surgeons for 1997-1998. Dr. Smith has also been a White House surgical consultant for almost 20 years.

- Captain William H. J. Haffner, United States Public Health Service, Chair, Department of Obstetrics and Gynecology, is the editor of Obstetric, Neonatal, and Gynecologic Care published by the American College of Obstetricians and Gynecologists under contract with the Indian Health Service. The publication provides a practical approach to women's health care in the remote and frontier settings of the Indian Health Service communities. It serves as a guide for Family Physicians and Clinical Nurses in the Indian Health Service and Tribal Programs. Captain Haffner also served as a lecturer and discussion leader for the Postgraduate Course in Obstetric, Neonatal and Gynecologic Care conducted by the American College of Obstetricians and Gynecologists in Denver, Colorado, on September 16-19, 1997, for the Indian Health Service and Tribal Physicians and Nurses.

- Captain Jerry A. Thomas, MSC, United States Navy, is a Research Assistant Professor in the Department of Radiology and Nuclear Medicine. Recognizing his expertise in Diagnostic Medical Physics, the Federal Drug Administration requested his services to assist in training all Federal and State inspectors responsible for performing Mammography Quality Standards Act inspections of mammography facilities in the United States. Captain Thomas is recognized as one of the standard setters in digital imaging within the Defense Department and the United States. He is the Chair of the technical team charged with designing and fielding a system for digital radiology and telemedicine that will fully integrate digital radiographic images and their associated reports into the electronic patient record (which will eliminate the extensive use of film from DoD's medical practice). As noted by the Federal Drug Administration, Captain Thomas is also an expert in digital mammography. Throughout Fiscal Year 1997 and currently, he has been developing and clinically validating computer-aided diagnostic algorithms for mammographic images.

- Jeannette E. South-Paul, M.D., Associate Professor and Chair, Department of Family Medicine, was nominated by the American Academy of Family Physicians and selected as one of 30 health care professionals across the United States to serve as a Public Health Service Primary Care Public Policy Fellow during 1997. The purpose of the Fellowship is to provide an opportunity for primary care practitioners, academicians, researchers, and administrators to better understand the dynamics of primary care policy development, the legislative process, and resource identification.

- Sharon L. Juliano, Ph.D., and Professor, Department of Anatomy, in early 1997, accepted an invitation to serve as a member of the Neurological Sciences Study Section, Division of Research Grants. The membership recognizes Dr. Juliano's demonstrated competence and achievement in scientific discipline, as well as her accomplishments and contributions to science. The three-year membership also lends her "a unique opportunity to contribute to the national biomedical research effort."

- George W. Cox, Ph.D., USUHS Assistant Professor, Department of Pharmacology, was appointed as an Associate Editor of the Journal of Immunology.

- Val G. Hemming, M.D., Dean, School of Medicine; Robert J. Ursano, M.D., Professor and Chair, Department of Psychiatry; Harry C. Holloway, M.D., Professor of Psychiatry; and, Carl H. Gunderson, M.D., Professor and Acting Chair of Neurology were selected in 1997 for the First Edition of Who's Who in Medicine and Healthcare.

- Colonel Louis Pangaro, MC, United States Army, Associate Professor of Medicine and Vice Chair for Educational Programs, Department of Medicine, completed a term as President, Clerkship Directors of Internal Medicine (CDIM). CDIM is a national organization founded to foster excellence in the education of students in the core clerkship in internal medicine at accredited medical schools in the United States of America, the Commonwealth of Puerto Rico, and Canada.

- Anthony T. Maurelli, Ph.D., Associate Professor, Department of Microbiology and Immunology was reappointed to the American Society for Microbiology Publications Board. His term of reappointment to the national board is from January 1, 1997 to December 31, 1999.

- Stefanie N. Vogel, Ph.D., Professor, Department of Microbiology and Immunology was selected to be the Deputy Director of the Journal of Immunology; Dr. Vogel was also appointed as a Representative for the Society for Leukocyte Biology, Board of Scientific Directors, American Type Culture Collection.

- William C. Gause, Ph.D., Associate Professor, Department of Microbiology and Immunology, was reappointed as Section Editor, Journal of Immunology.

- Alison O'Brien, Ph.D., Professor and Chair, Department of Microbiology and immunology, received a three-year research grant this year from the Department of Agriculture that will fund a project to develop an inexpensive vaccine for the prevention of a specific E.-coli infection in humans. The organism appears to colonize in the intestines of both dairy and beef cattle and produces a toxin that escapes into the blood stream which can result in contamination of meat and milk.

- Louis R. Cantilena, Jr., M.D., Ph.D., Director of the Division of Clinical Pharmacology and Medical Toxicology, Department of Medicine was awarded a significant grant from the National Institute of Drug Abuse during 1997. The grant will enhance the clinical research center Dr. Cantilena established at the National Naval Medical Center and will be used to recruit new faculty and staff members to the University. Also, the grant will increase the involvement of the University and the Department of Medicine with national clinical research efforts directed at reducing the effects of drug dependence in the military and the American society.

- Larry W. Laughlin, M.D., Ph.D., Interim Chair, Department of Preventive Medicine and Biometrics was awarded a five-year grant from the National Institutes of Health/Fogarty Center to carry out International Training in Emerging Infectious Diseases. This is a joint program with the Department of Microbiology and Immunology and the Department of Preventive Medicine and Biometrics. Program goals include the development of global disease surveillance systems for Central and South America.

- Captain Ildy M. Katona, M.D., MC, United States Navy, Professor of Pediatrics and Medicine and Chair, Department of Pediatrics, was elected to membership on the American Board of Pediatrics, Sub-board of Pediatric Rheumatology (1997-2000). Dr. Katona completed a three-year term as an associate member of the board in 1997.

- Major Cheryl D. DiCarlo, United States Army, Deputy Director, Department of Laboratory Animal Medicine, Teaching and Research Support, was certified as a diplomate of the American College of Laboratory Animal Medicine (ACLAM) during Fiscal Year 1997. Certification as a specialist or diplomate of the ACLAM is achieved by meeting standards of education and experience, and passing comprehensive written and practical examinations.

- Lieutenant Commander Peter M. Rhee, MC, United States Navy, MPH, Assistant Professor of Surgery, completed a grant funded by the Navy Medical Research and Development Command on "Leukocyte Sequestration and Activation in Hemorrhagic Shock" during Fiscal Year 1997. The work performed on this grant aided in the development of the Trauma Research and Readiness Institute for Surgery and resulted in numerous academic publications and presentations by Lieutenant Commander Rhee.

For further information regarding this document contact the USUHS Office of the Vice President for Administration and Management (301) 295-1956.

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OFFICE OF THE
PRESIDENT

February 2, 1998

TO: _____

ATTACHMENT: Reference/Historical Document for Fiscal Year 1997

In November of 1997, the Secretary of Defense determined that the Uniformed Services University of the Health Sciences (USUHS) should remain open as part of the Fiscal Year (FY) 1998 Defense Reform Initiative. Program Budget Decision (PBD) 711 issued on December 17, 1997, outlines the Department of Defense (DoD) Reform Initiative. This PBD moves USUHS from under the direct oversight of the Office of Health Affairs, Office of the Secretary of Defense, and places the University under the collective oversight of the Surgeons General of the Army, Navy, and Air Force. The PBD "restores manpower and funding for USUHS and establishes the Surgeon General of the Navy as the Executive Agent."

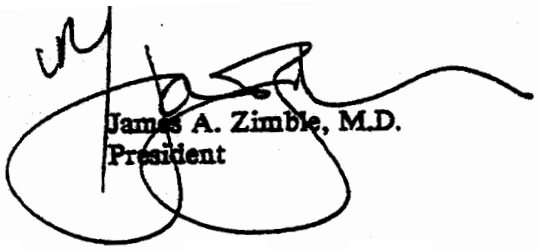
In consideration of the ongoing realignment of USUHS, the review of the University by the Surgeons General of the Army, Navy, and Air Force for possible areas of expansion, and the celebration during FY 1997 of the 25th Anniversary of the establishment of the University, the Office of the USUHS Vice President for Administration and Management developed and coordinated the Historical/Reference Document for Fiscal Year 1997 to reflect the following: 1) USUHS served during FY 1997 as the Academic Center for Uniformed Medicine through its sponsorship of military-unique conferences, research, and educational activities; 2) USUHS' consultative, educational, and on-line service endeavors are poised for expansion as required by the Surgeons General and the Military Health Service System (MHSS); 3) the University, the F. Edward Hebert School of Medicine, the Graduate Education Programs, the Graduate Medical Education Program, the Graduate School of Nursing, and the Office of Continuing Education for Health Professionals are described in detail to include their status of accreditation, mission, programs and activities; and, 4) USUHS has met the missions established by Congress in 1972 and the Department of Defense Medical Programming Guidance for Fiscal Years 1994 - 1999.

Of significant mention in this report are the military-unique conferences sponsored by the University during FY 1997: the 1 1th Conference on Military Medicine; the International Mine and Blast Injury Symposium; the First International Conference on Tactical Emergency Medical Support; and, the Military Research Symposium: Protection of Human Subjects. This document describes both the conferences and how USUHS, as the Academic Center for Uniformed Medicine, provided significant support and expertise to meet the unique requirements of uniformed medicine.

An academic center must constantIy renew itself and be prepared to meet the future requirements of those whom it serves. The USUHS Traumatic Stress Center, the Centers for Preventive Medicine and Public Health, the Casualty Care Research Center, and the Armed Forces Radiobiology Research Institute provided military-unique consultative, educational, and research services throughout FY 1997; this document describes specific and unique areas of expertise relevant to uniformed medicine and how each of these activities is poised to respond to future requirements as identified by the Surgeons General and the MHSS. The USUHS Learning Resource Center, the newly-established Center for Informatics in Medicine, the on-going World-Wide-Web and Distance Learning Projects, the proposed Simulation Center for the National Capital Region, and the mandated USUHS Medical Executive Training Course are described in detail in this document. All of these activities are at the cutting edge of educational technology and ready to provide significant service to the DoD.

Fiscal Year 1997 included significant opportunities for USUHS. For example, in August of 1997, the University participated in an intensive survey on streamlining education throughout the DoD. Significant to the University was the direction from the senior staff of the Office of Force Management Policy, Office of the Secretary of Defense (OSD), to include all of the programs of USUHS in its response. The final report issued in December of 1997, on page 70, determined that USUHS provides "by far the strongest academic certification" to the DoD. The OSD survey data, as discussed on page nine of the OSD report, further substantiates the cost-effectiveness of the University to the DoD.

The attached document will serve many purposes throughout the years to come. I extend my sincere appreciation to Mrs. Dix, the Vice President for Administration and Management, for her superb work on this document; the Dean of the School of Medicine; the Dean of the Graduate School of Nursing; and, the Activity Heads, Chairs, and Program Directors who participated throughout an extensive coordination process. It is a splendid reflection of the missions and accomplishments of our entire USUHS community. Once again, I can honestly state how very proud I am to serve this remarkable University.



James A. Zimble, M.D.
President